

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[PRICE 6D.]

WHEAL CURTIS COPPER MINING COMPANY.
The directors hereby give Notice, that an **EXTRAORDINARY GENERAL MEETING** of the shareholders of this company will be **Held** at the company's offices on **Thursday, the 26th day of May inst., at Two o'clock in the afternoon** precisely, to take into consideration the present state of the mine—the propriety of issuing preference shares in the said undertaking, in lieu of making further calls, and on other special affairs.
By order, **GEO. A. JACOB, Secretary.**

VENTILATION OF COAL MINES—BIRAM'S PATENT ANEMOMETER.—This instrument has now been successfully employed by many eminent engineers, to whom reference can be given. For particulars, apply either to the inventor, B. Biram, Esq., Westmoreland, or to the maker, John Davis, Derby, manufacturer of miners' lamps, clinometers, safety-lamps, and all kinds of instruments pertaining to the mine, are made and kept in stock. Repairs promptly attended to. J. DAVIS, Irongate, Derby.

ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY, 52, HAWLEY ROAD, KENTISH TOWN, LONDON, to which address communications are to be forwarded. Instruction in all branches of assaying and analysis is usual.

ADCOCK'S PATENT SPRAY PUMP.—This important invention having been PERFECTED, and brought into SUCCESSFUL PRACTICAL OPERATION, the PATENT is now ready to RECEIVE, and to execute, ORDERS. Apply to Henry Adcock, C.E., at his office, No. 2, Moorgate Street, London, where pamphlets, descriptive of the invention, may be had; at the office of the Mining Journal, 26, Fleet Street; and through any respectable bookseller—price 6d.

PROFESSIONAL LIFE ASSURANCE COMPANY. Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar institution. Incorporated—Capital £250,000.

Established upon the mixed, mutual, and proprietary principle. Rates essentially moderate. Every description of policy granted. Immediate, survivorship, and deferred annuities; and endowments to widows, children, and others. Every policy (except only in cases of personation), indisputable. The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium. Medical men remunerated for their reports. Loans granted on real or personal security. One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans. Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties. Persons of every class and degree admitted to all the advantages of the corporation. Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £14s. 6d., £25s. 6d., £34s. 3d., and £41s. 6d. Prospectuses, with full details, may be had at the office. Applications requested from parties desirous of becoming agents. EDWARD BAYLES, Actuary and Secretary, Offices, 76, Cheapside, London.

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Capital £500,000.—Empowered by Act of Parliament. This institution embraces important and substantial advantages with respect to Life Assurances and Deferred Annuities. The assured has, on all occasions, the power to borrow, without expense or forfeiture of the policy, two-thirds of the premiums paid (see table); also the option of selecting benefits, and the conversion of his interests to meet other conveniences or necessities. Assurances for terms of years are granted on the lowest possible rates.

DIVISION OF PROFITS. The remarkable success and increasing prosperity of the society has enabled the directors, at the last annual meeting, to declare a fourth bonus, varying from 35 to 85 per cent. on the premiums paid on each policy effected on the profit scale.

Year.	Sum.	Profits.	Year.	Bonus added.	Bonus in Cash.	Permanent reduction of Premium.	Assured may Borrow.
1837	£217 15 1	£109 0 11	1837	£217 15 1	£109 0 11	£16 0 4	£445 0 0
1838	192 3 0	87 1 4	1838	192 3 0	87 1 4	13 10 2	395 11 1
1839	165 11 10	74 1 9	1839	165 11 10	74 1 9	11 3 1	346 2 3
1840	116 7 6	54 10 0	1840	116 7 6	54 10 0	7 18 10	256 13 4
1841	111 6 8	49 10 0	1841	111 6 8	49 10 0	7 10 4	247 4 5

The division of profits is annual, and the next will be made in December of the present year.

ON NERVOUS DEBILITY AND GENERATIVE DISEASES. Just published, the thirty-fifth thousand, an improved edition, revised and corrected, 120 pages, price 2s. In a sealed envelope, or forwarded, post-paid, by the Authors, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical colored engravings. &c.—By J. L. CURTIS & CO., Consulting Surgeons, 7, FRIEL STREET, SOHO-SQ., LONDON.

MANHOOD: THE CAUSES OF ITS PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, extending from solitary and sedentary habits, disordered excretion, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other venereal diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS & CO., Consulting Surgeons, 7, FRIEL STREET, SOHO-SQ., LONDON.

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman. —Sun, Evening Paper.

Curis, On Manhood. (Strange).—Having for many years been the standard work on these diseases, its originality is apparent, and its personal breathes consolation and hope to the mind of the patient. —Naval and Military Gazette.

Manhood: a medical work. —To the gay and thoughtless we trust this little work will serve as a beacon warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health. —Chronicle.

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation. —Era.

Published by the authors, and may be had at their residence: sold also by Strange, 21, Paternoster-row, London; Heywood, Oldham-street, Manchester; Philip, South Castle-street, Liverpool; Robinson, 11, Green-side-street, Edinburgh; Berry and Co., Capel-street, Dublin; and, in a sealed envelope, by all booksellers.

Illustrated by 26 Anatomical Coloured Engravings on Steel. On Physical Disqualifications for Marriage, and Impotency in Manhood. New Edition, enlarged to 120 pages. —Just published, price 2s. 6d., or by post, direct from the establishment, 3s. 6d. in postage stamps.

THE SILENT FRIEND: a medical work, on the infirmities of the mind and decay of the generative system, from excessive indulgence, infection, and the inordinate use of mercury, with remarks on marriage, and the means of obviating certain disqualifications, illustrated by 26 coloured engravings. By R. & L. PERRY & CO., 19, BERNERS-STREET, OXFORD-STREET, LONDON. Published by the authors; sold by Strange, 21, Paternoster-row; Hannay, 63, and Sanger, 150, Oxford-street; Starke, 23, Titchborne-street, Haymarket; and Gordon 146, Leadenhall-street.

PAGE'S FIRST TREATISE of the anatomy and physiology of the reproductive organs, and is illustrated by six coloured engravings. PART THE SECOND treats of the consequences resulting from excessive indulgence, and their deleterious effects on the system, producing mental and bodily weakness, nervous excitement, and generative incapacity; it is illustrated by three explanatory engravings. PART THE THIRD treats of the diseases resulting from infection, either in the primary or secondary form, and contains explicit directions for their treatment. The consequences of neglect, and of the abuse of mercury are also clearly pointed out. This section is illustrated by 17 coloured engravings. PART THE FOURTH treats of the prevention of disease by a simple application, by which the danger of infection is obviated. Its action is simple, but sure. It acts with the virus, and destroys its power on the system. This important part of the work should be read by every young man entering into life. PART THE FIFTH is devoted to the consideration of marriage and its duties. The causes of unproductive unions are also considered, and the whole subject critically and philosophically inquired into.

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Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

MONDAY	Geographical—3, Waterloo-place	8 P.M.
TUESDAY	Medical—Bolt-court, Fleet-street	8 P.M.
WEDNESDAY	Medical and Chirurgical—52, Berners-street	8 P.M.
THURSDAY	Civil Engineers—25, Great George-street	8 P.M.
FRIDAY	Zoological—11, Hammer-smith	9 P.M.
SATURDAY	Linnaean—Soho-square	1 P.M.
	Society of Arts—Adelphi	8 P.M.
	Microscopical—21, Regent-street	7 P.M.
	Royal—Somerset-house	8 P.M.
	Antiquaries—Somerset-house	8 P.M.
	Royal Society of Literature—4, St. Martin's-place	4 P.M.
	Medico-Botanical—32, Backville-street	8 P.M.
	Royal Institution—Albemarle-street	8 P.M.
	Philological—12, St. James's-square	8 P.M.
	Royal Botanic—Inner Circle, Regent's-park	8 P.M.

INSTITUTION OF CIVIL ENGINEERS.

MAY 16.—JOSHUA FIELD, Esq. (President), in the chair.

No paper was read, in order to afford time for the discussion on Mr. Gooch's paper, "On the Resistance to Railway Trains at different Velocities," which was read at the meeting of April 18. The principal papers were Messrs. Brunel, Gooch, Bidder, Locke, Harding, and Russell, and their arguments were necessarily so complicated by calculations, as to render it difficult to convey, within reasonable limits, even an outline of the discussion. It was contended, on one side, that the subject had been so treated in the paper as to make it almost a question of the comparative gauges; that the experiments upon which the arguments were founded could not be received as applicable to railways in general, inasmuch as it was presumed from the statements that the portion of the line was selected as being in the best working condition; that the engine and the carriages were also picked as being in the best order; and that, therefore, the results were due to these peculiar circumstances, and not to the ordinary working state of the line; that the amount of resistance per ton was understated by Mr. Gooch, on these accounts, and that the rate of resistance, arrived at by the committee of the British Association, by projecting trains of carriages down inclined planes was nearer the truth than the expression of resistance arrived at by the locomotive and the dynamometer; that the tables were partly made up from the actual results of the experiments, and by using Mr. Harding's formula, which had been repudiated in other cases as incorrect; that the greater weight of the train in the late experiments, as compared with those of the British Association, &c., reduced the value of the deductions; that the atmospheric railway could alone give the resistance due to the frontage, which was not given when a locomotive was used, as it covered a portion on the carriage frontage, and the dynamometer being behind the engine, the resistance of the train of carriages alone could be arrived at, and that the valuation of the pressure of the wind upon the train at various angles was not satisfactory. Such was the general tenor of the arguments; and on the other side it was urged, that Mr. Gooch had endeavoured, as much as possible, to avoid introducing in any degree the question of the gauges, and to give the actual results of the experiments, in order that every person examining them might draw his own conclusions; that the portion of the line on which Mr. Gooch's experiments were tried was not selected for its good condition; that it was only fixed upon by Mr. Brunel himself the night previously to the experiments, and was not that part which had been originally intended to be used; that the engine and carriages were such as could be spared from the working stock, and were not picked—in fact, that they were not the best of their class; that, therefore, the results were not due to peculiar circumstances, but were those of the average working of the line; but that even had the line, engine, carriages, been selected, engineers would, from the results, have been able to make allowances for other cases, and that it was believed that in descending Wootton Bassett incline by gravity, without the aid of an engine, a greater velocity had been attained than the maximum recorded in the experiments of the British Association; that the tables were divided into columns, distinctly showing what resulted from experiment, and what from the use of formulae; that it was impossible with engines of the ordinary weight, as now constructed, with an ordinary train, to limit the experiments to such small weights as had been formerly used; that in all cases the surface of the locomotive for calculating the frontage resistance, was not so satisfactory as could have been desired, and therefore its results were kept separate in the table; that Mr. Gooch had not intended to cast any reflections upon the former experimentalists, but merely to point out the errors into which he thought they had fallen, and to induce, by his experiments, others which should fix more certainly the amount of resistance; this, it was still contended, was less than had been formerly stated, and, although other experiments would be necessary to set the question completely at rest, it was unanimously agreed that Mr. Gooch's experiments and paper were very valuable contributions, and it was hoped he would continue his observations on this most interesting subject.

The paper announced to be read at the meeting of Tuesday, May 23, was "On the Principles of the Construction of Ventilating Water-wheels," by Mr. W. Fairbairn, M.T.C.E. The President's annual conversation was announced to be held on Tuesday evening, May 20, at the house of the institution, 25, Great George-street, Westminster; and the members were requested to use their influence in procuring good models and works of art for exhibition on that occasion.

SOCIETY OF ARTS.

MAY 17.—J. WEBSTER, Esq., F.R.S. (Vice-President), in the chair.

The second part of Dr. Pott's pneumatic apparatus for sinking hollow and solid piles, with a view to the formation of the foundations of light-houses, and beacons, was now gone into, and the entire of this important subject brought to a conclusion.

In following up the description of Dr. Pott's paper on pile driving, by pneumatic pressure, an interesting discussion ensued, in which Dr. Pott, Mr. Russell, and others took part, on the possibility of erecting a lighthouse on the Godwin Sands. Mr. Shepherd fully explained the process of sinking through running sands, which so often occur in the coal districts, and which might be securely carried out on the Godwin by Dr. Pott's principle, for the safe establishment of a lighthouse; these sands, he stated, might be penetrated without the slightest difficulty, and at a trifling expense, compared with the present system; he then proceeded to explain the principle of his project, which had been detailed in the *Mining Journal*, and concluded by stating, that he had submitted the plans and sections, which were then exhibited on the walls, to the society, and the highest engineering authorities, all of whom expressed their highest approval of the plans; he considered that, in a practical, scientific country like England, it reflected but little credit on the elder brethren of the Trinity House, in not having caused experiments to be made relative to the depth of these sands, and the true character of the rock on which they rest, considering the great importance of safe and a proper anchorage for the moving Specimens of Mr. Buckwell's artificial granite, or rather conglomerate, for architectural and engineering purposes, and of Mr. Ransome's artificial stone, a softer and lighter material, were exhibited and explained. The former is an imitation of Hertfordshire pudding-stone, and the latter of sandstone. As the patentee of the former had not yet specified, the composition of the stone was not announced, and it was accordingly agreed that the subject would be better gone into when the patent was complete.

A model of Mr. J. Southam's wedge and screw "fid," or contrivance for lowering masts without slackening the rigging, or without sending men aloft, was exhibited on the floor of the great room.

Mr. Clayburn's plough dynamometer, an excellent instrument for ascertaining correctly the draft of ploughs and other agricultural machines, was also exhibited; but, like the preceding instrument, only briefly alluded to, in consequence of the advanced hour of the evening. The resistance of spiral springs, enclosed in a rectangular case, is here ingeniously employed to measure the tension of the connecting chains of the plough, and a pencil index traces on a card discharged over a roller the indication of the moving parts at every instant of the operation. The model was lately tried at Addington-farm, Croydon, Surrey, and there showed that a great waste of animal power was incurred in the soil experimented upon. In conjunction with the new American ploughs, it gave very favorable evidence of their merits. As an instrument to give useful information to the farmer, there can be no doubt of the advantage of this machine, which may also be applied with success to the purposes of several branches of experimental philosophy. One instance of its application in this sense has been seen, and the evidence it has afforded in the determination of the great problem—What is a horse-power? It has determined, on secure data to be a power capable of raising 33,000 lbs. 1 ft. high in a minute of time—result singularly coinciding with that of Watts, who made the weight 33,000 lbs., *ceteris paribus*.

WESTMINSTER LITERARY AND SCIENTIFIC INSTITUTION.

Another lecture was given, on Thursday last, by Mr. Schmidt, of Sutton-street, Waterloo-bridge, on the subject of "Artificial Hatching Chickens, and Rearing Fowls, Game, &c."

The theatre was crowded, and the lecture was enthusiastically applauded. Although the subject does not immediately belong to the object of our *Journal*, yet it may interest some of our readers to read a few facts. From 70,000,000 of eggs, and 10,000,000 of poultry and game, are annually produced in this country, the money for which might just as well be put into our own farmers' pockets, and, at the same time, employ young children and old people, now useless hands on a farm. A calf requires about five years to be fattened to 12 cwt.; 600 chickens can be brought to the same weight in 13 weeks, and obtain a much higher price than the beef—thus the small capitalist can turn over his money 15 or 18 times to the grazier's once. The guano of poultry, mixed with lime and charcoal, is a certain cure for the fly in turnips, according to a leading American paper. The *John O'Grass's Journal* states, that about 42,000 eggs are sent weekly to London, and the produce of this article alone equals the whole rental of the county 50 years ago. By the present system, 18 hatches a-year are obtained, against 2 of the hen.

LITERARY NOTICE.

Mining—Minerals—Metals and Metallurgy.

Such are the headings of the last two Nos. of *Chambers's Information for the People*; and we know not any publication of a more interesting nature than that under review. True, it is a reprint, and we could have wished it had been more carefully revised than it would appear to have been, judging from our own observation and knowledge of the mining districts and subjects treated on; yet, we are bound to say, much credit is due to the compiler—the papers under notice conveying a general idea of the matters to which they are directed, and affording general information, which will, doubtless, induce the reader to extend his inquiries, and consult works which he is naturally interested in the present mining memoir introductory. That treating on metals and metallurgy may be thus briefly described; and its importance will, we feel assured, be readily acknowledged, when the several points to which attention is directed are defined. Not only are the geological conditions, or features, set forth, but articles are introduced, descriptive of beds or veins, and the nature of mining operations, which, in themselves, give a fair outline—indeed, sufficient to enable parties unacquainted with mining districts to form an opinion of the *modus operandi*; to these are subjoined a paper, or treatise, on metallurgy, in which is embraced the mode of reduction practiced as regards not only the precious metals, but those of iron, copper, lead, tin, quicksilver, antimony, zinc, manganese, and other mineral products. The paper, treating on mines and minerals, is one which will be read with interest, as affording information to the uninitiated, and as collecting many useful details. Some observations on coal, and the localities in which it is formed, with a series of articles on limestone, marble, clay, clay-slate, sandstone, and granite rocks, precious stones, calcareous spars, &c., comprise the subjects to which this number is devoted, and which appears to be rather a compendium of information connected with the introduction, as we find the consideration of the metallic ores and metals is reserved for a future number. We most cordially recommend the series to those who are anxious to acquire information in a cheap and popular form.

The Metallurgical Treatment of Ores.

[Continued from May 13.]—No. XVIII.

Platinum is always found native, and alloyed with other metals, some of which nearly always accompany it—such are palladium, rhodium, iridium, and osmium; but there are some ores which contain only two or three of these. The ores of platinum are never found in sufficient quantity to be profitably worked, excepting in alluvial formations like those which yield gold and the diamond. M. Boussingault has discovered it, in thread-like veins, near Santa Rosa, in Columbia. These veins are made up of hydrated oxide of iron, mixed with clay and quartz. The platinum is disseminated in grains in this substance, mixed with gold. Platinum is generally met with in flattened and very small grains; but it is sometimes found like gold, in *pepitas*. At Choco, some was found which weighed very nearly 1 lb. Platiniferous sands are worked at Choco and in the Brazils; it is also found at St. Domingo, and in the Ural Mountains, where it is worked in very large quantities. The ores of platinum, when washed to separate light stony matters, contain a great number of different substances, as for instance—

1. Gold: this is generally separated by means of mercury.
2. Titaniferous iron: some grains of which are magnetic, others are not so; its proportion is sometimes as high as 14 or 15 per cent.
3. Chrome iron: this is generally present in smaller quantities than the last-mentioned constituent.
4. Hyacinth.
5. and lastly, Fragments of copper and lead ores.

The following are analyses of some of the ores, by Berzelius:—
Ore from *Nichne-Tagilsk* (magnetic).—Platinum, 73.58; palladium .30; rhodium, 1.15; iridium, 2.35; iron, 12.98; copper, 5.20; gangue, 2.80—97.86.
Ore from *Nichne-Tagilsk* (not magnetic).—Platinum, 78.94; palladium, .28; rhodium, .86; iridium, .43; iron, 11.04; copper, .70; osmium of iridium, 1.96—98.75.

Ore from *Goroblagodat* (Siberia).—Platinum, 86.50; palladium, 1.00; rhodium, 1.15; iron, 8.32; copper, .45; gangue, 1.4—98.82.

Ore from *Barbacoas* (Columbia).—Platinum, 84.30; palladium, 1.06; rhodium, .846; iridium, 1.46; osmium, 1.03; iron, 5.31; copper, .74; gangue .60—97.96.

The extraction of pure platinum, and the art of forming it into ingots, presented peculiar difficulties to those who first attempted to work it. Platinum being infusible when pure, led to the idea, at first, of attempting to convert it into a fusible compound, which could be reduced to the state of pure platinum, after it had been cast into ingots. This was tried, on the large scale, by Janety, who converted the platinum he worked into arseniuret.

This process was to pound the platinum, and wash it, so as to free it from the greater part of the sand, titaniferous iron, and chrome iron. Three parts of the platinum thus prepared were fused in an earthen crucible, with six parts of arsenious acid and two parts of potash of commerce. The crucible employed was sufficiently large to hold four times as much in bulk as the whole of the mixture, so as to avoid loss by the effervescence caused from the evolution of carbonic acid. On raising the heat until the whole was in perfect fusion, a button of arseniuret of platinum, and a slag, composed of arseniuret of potash, were obtained; carbonic acid was disengaged, and a large quantity of arsenical fumes, which rendered the operation very dangerous, unless it was conducted in furnaces with a good draught. Besides arseniuret of platinum, which formed the principal mass of the button, it contained a part of the metals which accompanied the platinum. Janety re-fused this three or four times, with potash to purify it. In fact, it was fused as long as the potash became coloured in the operation. The arseniuret thus purified was broken, and again fused, with three parts of arsenious acid and one part of potash to two parts of the arseniuret. The button thus obtained still contained a very large quantity of arsenic, from which it was freed by a long and tedious roasting, which was carried on in muffles, similar to those used by assayers. Each heating lasted six hours; and it had to be repeated many times before the whole of the arsenic was disengaged. At the termination of each heating the ingot was plunged in oil. Lastly, when the ingot appeared sufficiently pure, it was moistened with nitric acid, and washed with boiling water, and then heated to redness, before being submitted to the hammer. The blows were applied very cautiously at first, and in proportion, as its consistence increased, the weight of the blow was also increased, the ingot being heated to redness from time to time. This process, besides the serious inconveniences due to the arsenical vapours given off during the first preparation, possessed yet another, which caused it to be abandoned. The whole of the arsenic was not given off during the repeated roastings, so that a small proportion remained in the platinum; and, when the latter was beaten into vessels required to withstand a red heat, it was speedily filled with small blisters, which finally caused it to scale and so be destroyed.

There have been, also, very many methods proposed to work platinum ores by the dry way, but none of them seem successful, and they are now entirely treated by the humid method, as proposed by Prof. Wollaston, and described by him in the *Philosophical Transactions* for 1828, from which the following account is, with some few omissions, transcribed:—

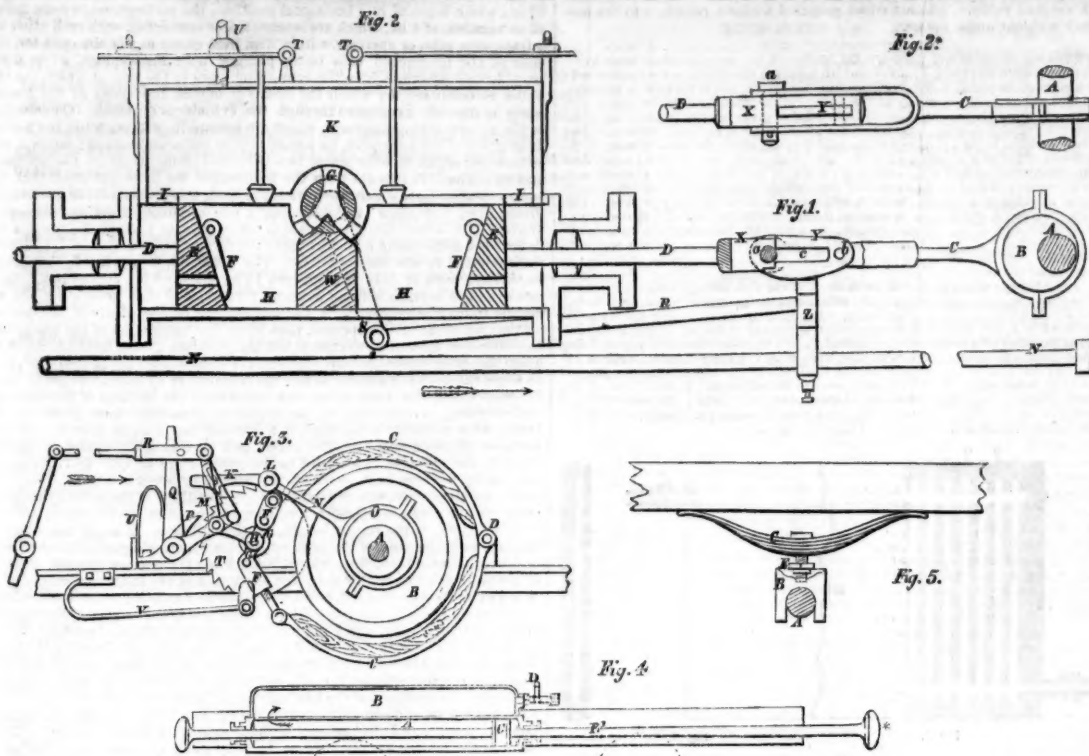
The usual means of giving chemical purity to this metal (platinum) by solution in *aqua regia*, and precipitation with sal-ammoniac, are known to every chemist; but I doubt whether sufficient care is usually taken to avoid dissolving the iridium contained in the ore by due dilution of the solvent. In an account which I gave in the *Philosophical Transactions* for 1804, of a new metal (rhodium) contained in crude platinum, I have mentioned this precaution, but omitted to state to what degree the acids should be diluted. I now, therefore, recommend, that to every measure of the strongest muriatic acid employed there be added an equal measure of water; and, moreover, that the nitric acid used be what is called "single aquafortis," as well for the sake of obtaining a purer result as of economy in the purchase of nitric acid. With regard to the proportions in which the acids are to be used, I may say, in round numbers, that muriatic acid, equivalent to 150 of marble, together with nitric acid, equivalent to 40 of marble, will take 100 of crude platinum; but in order to avoid waste of acid, and also to render the solution purer, there should be in the menstruum a redundancy of 20 per cent. at least of the ore. The acids should be allowed to digest three or four days, with a heat which ought gradually to be raised; the solution being then poured off, should be suffered to stand until a quantity of fine pulverulent ore of iridium, suspended in the liquid, has completely subsided, and should then be mixed with 41 parts of sal-ammoniac, dissolved in about five times their weight of water. The first precipitate, which will thus be obtained, will weigh about 165 parts, and will yield about 66 parts of pure platinum. As the mother liquor will still contain about 11 parts of platinum, these, with some of the other metals yet held in solution, are to be recovered by precipitation from the liquor by clean bars of iron; and the precipitate is to be re-dissolved in a proportionate quantity of *aqua regia*, similar, in its composition, to that above directed to be used; but in this case, before adding sal-ammoniac, one part, by measure, of strong muriatic acid should be mixed with 32 parts, by measure, of the nitro-muriatic solution, to prevent any precipitation of palladium, or lead, along with the ammonio-muriate of platinum. The yellow precipitate must be well washed, in order to free it from the various impurities which are known to be contained in the complicated ore in question, and must ultimately be well pressed, in order to remove the last remnant of the washings. It is next to be heated, with the utmost caution, in a black-lead pot, with as low a heat as just to expel the whole of the sal-ammoniac, and to occasion the particles of platinum to cohere as little as possible, for on this depends the ultimate ductility of the product. The grey product of platinum, when turned out of the crucible, if prepared with due caution, will be found slightly coherent, and must then be rubbed between the hands of the operator, in order to procure, by the gentlest means, as much as can possibly be so obtained, of metallic powder, so fine as to pass through a fine lawn sieve. The coarser parts are then to be ground in a wooden bowl with a wooden pestle, but on no account with any harder material, capable of burnishing the particles of platinum, since every degree of burnishing will prevent the particles from cohering in the further stages of the process. Since the whole will require to be well washed in clean water, the operator, in the latter stages of grinding, will find his work much facilitated by the addition of water, in order to remove the finer portions as soon as they are sufficiently reduced to be suspended in it. [In our next week's *Journal*, we shall conclude the treatment of platinum, and commence that of tin ores.]

ROYAL ASIATIC SOCIETY.—The members held their anniversary meeting on Saturday last, in their new house in Burlington-street, under the presidency of their learned director, Professor Wilson, in the absence of the noble president, the Earl of Auckland, who was understood to be prevented from presiding by his official duties. The annual report of the council gave congratulations on their having obtained a larger and more eligible house, and on the prospects of increased efficiency in carrying out the objects of the institution. It was understood, that the facilities afforded by the new locality would induce qualified members to give occasional evening lectures on interesting subjects, which had occupied their attention during their residence in the East.

CALEDONIAN RAILWAY.—The shareholders will be delighted to observe, that their anticipations of the remunerative character of their undertaking are in course of rapid realization. The traffic returns, during the last few weeks, exhibit a progressive increase, which, as the season advances, we have every reason to expect will be still further augmented. The opening of the Central is an event of the utmost importance to the Caledonian, and we hope, ere long, to be enabled to intimate the completion of the short link still wanting in the great chain of communication from the British metropolis in the north of Scotland.—*Scottish Railway Gazette*.

THE IRON TRADE.—At Messrs. R. Bradley and Sons' Factory Iron-Works, Tipton, a few days since, 20 plates were rolled, weighing each, when sheared, 2106 lbs., or 18 cwt. 3 qrs. 6 lbs.—*Wolverhampton Chronicle*.

PREVENTION OF RAILWAY ACCIDENTS.



The means for avoidance of those dire catastrophes which are so frequently occurring upon the various lines of railway in this country, is a subject that has engaged the attention of the public for some time past; and ever and anon have we had some new claimant appearing, who demands the palm of victory, as the vanquisher of the difficulties and dangers which beset railway travelling; yet, although many ingenious, and, in some respects, highly meritorious plans have been, from time to time, developed, still none of them have hitherto shewn themselves of that thoroughly practical character that impresses the mind with a distinct idea of perfection attained. The invention we would now introduce to the readers of the *Mining Journal*, is one recently patented and specified by Mr. LANE, the eminent brewer of Liverpool, and which, as far as we could judge, appears to be as near perfection as can well be conceived; and we form our judgment after having visited the patentee's establishment at Liverpool, and witnessed several experiments on a line of rails of considerable extent he has laid down, upon which runs a perfect working locomotive, capable of carrying upwards of two tons weight, to which these improvements are attached, as also to trucks connected thereto, for the purpose of conducting such experiments. As the adoption of this invention would not be an expensive matter, and would certainly prevent the recurrence of such fatal accidents as those that recently happened on the North-Eastern and Great Western Railways; and as, in spite of all opposition, the present system of keeping the various lines of railway without proper safeguards, must at last, when the evil has arrived at the culminating point, come to be corrected by legislative enactments, we think railway boards will see that it is their own interest, as well as that of the public at large, to adopt an invention possessing such advantages as that of Mr. Lane's.

The experiments, which were of the most satisfactory character, were conducted in the following manner:—The steam having been got up, the engine, with its tender and complement of water, four men and two trucks, passed along the line at the rate of about 20 miles an hour, for the purpose of testing the efficiency of the new "break" apparatus, for retarding the motion of the carriages and engine; and, upon a conventional sign from us, the man put on the break, without shutting off the steam; when, to our astonishment, the whole train was brought to a stand-still within a few feet—the peculiar feature of this break consisting in locking all the wheels of each carriage to which it is attached, at the same instant of time, by the means, and in the manner, hereinafter described and represented by the accompanying diagrams.

The next experiment tried, was to test the efficiency of the buffing apparatus, constructed upon an entirely new principle, which, although very simple, was infallible in its action, and, in our opinion, possesses the following advantages over the apparatus heretofore employed for that purpose:—In the first place, the buffer-rods are placed along the centre, and beneath the framing of each carriage, instead of at each corner, as usually practised, whereby the rocking motion of the carriages is considerably diminished. In the next place, the space usually occupied by the head of each buffer, and that portion of the rod which protrudes beyond the end of each carriage framing, is entirely dispensed with, and the framing of the carriages brought sufficiently near together to clear each other—the position of each carriage being, at all times, the same as when first coupled together, from the circumstance of the buffing apparatus acting independently of the carriages—that is to say, without altering the relative positions of them to each other. The effect of this buffing apparatus was tested by running the engine and load, at the top of her speed, against a strong oak post, securely fixed at the end of the line of rails; but the effect of the concussion was entirely destroyed by the buffing apparatus, the reaction of the train being very gentle. It should be observed, that the steam was kept full on during this experiment. This is effected by the means, and in the manner, hereinafter described and represented by the accompanying illustrative diagrams. Another feature of this invention consists in a simple mechanical contrivance, for adjusting the height of the body of railway carriages in accordance with the weight which each one has to carry, whereby the buffers may, at all times, be maintained in the same line, or nearly so, and by which the riding of the buffers will be considerably diminished. The whole of the experiments, which were repeated several times, were, in each instance, equally successful, and elicited considerable approbation from those present, who were principally engineers of experience; but, in order that this invention may be rendered more intelligible to our readers, we subjoin the following description of the illustrative diagrams of the mechanical arrangements, which the patentee has, up to the present time, found best calculated for carrying his invention into practical effect:—Fig. 1 exhibits a side elevation of one arrangement of parts, constituting an improved break; fig. 2 is a longitudinal and vertical section thereof, showing the internal arrangement of the parts; fig. 3 is another arrangement of break; fig. 4 is a longitudinal and vertical section of the buffing apparatus before mentioned; fig. 5 is an elevation of a bearing spring, showing the mode of adjusting it to the carriage framing.

The description of the break, exhibited at fig. 1, is as follows:—A, A, are the axles, upon which the wheels are fixed; B, B, eccentrics, one of which is placed upon each axle, or it may be upon one of the axles only; these eccentrics are furnished with rods, C, C, which are connected to each of the piston-rods, D, D, by a pin, as shown; E, E, pistons, fixed upon these rods, and furnished with clacks, F, F, for the purpose hereinafter mentioned; G marks a three-way cock, ground air-tight into a seat, formed in the cylinder, H, for its reception—such cock being for the purpose of establishing a communication between the cylinder, H, and the chamber, K, and openings, I, I, or between the back and front of the piston, in which state the apparatus is when out of action; there are rods, for supporting the cylinder, and other parts, in connection therewith; these rods pass around the axles, A, A, and are secured at their ends to cross pieces, attached to the axle stays; N, N, is a buffer rod of wrought-iron, of the same length as the carriage; O, O, buffer heads, fixed thereon; P, P, guides, for supporting and maintaining the buffer rod in its proper position; Q, a pin, for connecting one end of a link, R, to the buffer rod—the other end of said link being connected to an arm, or lever, S, fixed

to the three-way cock, G; T, T, are spring valves; U, an opening for charging the chamber, I, and cylinder with water; W, a division-plate. It will be seen, upon referring to fig. 1, that the eccentric rod, C, is formed forked at one end, and that there is a pin, a, passing across it; and upon this pin there is placed a slotted piece of metal, X, which is fixed to, or formed upon, the end of each of the piston rods, D, D, and connected to the piece, X, by a pin, b; there is a tappet piece, Y, which is acted upon by the tappet, Z, fixed to, or upon, the buffer rod, N. The *modus operandi* of this arrangement is as follows:—Assuming each of the pistons, D, D, to be in the position exhibited, and the buffer heads of each separate apparatus to be in contact, it will appear evident that the rotation of the running wheels will cause a reciprocating movement of the eccentric rods, C, without moving the piston rods, by reason of the pin, a, passing along the slot, c, in the piece, Y, which is retained in that position by the tappet, Z; and the movement of the pistons only takes place when the end of the buffer rod (which protrudes some distance beyond the framing of the engine) comes into contact with any obstacle—the effect of which is, to move the tappet, Z, from the piece, Y, which, by its weight, will fall; and the pin, being no longer able to pass along the slot, c, will push the piece, Y, together, with the piston rod connected thereto; at the same time, the communication between the back and front of the pistons, will be shut off by the action of the link piece, R, upon the arm, S; and the water will be compressed between the clacks, F, and division-plate, W, and cause sufficient friction between that part of the rod which embraces the eccentric to lock the wheels, and thereby produce the desired effect. The arrangement of the break, exhibited at fig. 3, is as follows:—A, A, mark one of the axles, upon which the wheels are fixed; B, a drum, or pulley, fixed upon each axle—the said drum being embraced by bands, or straps, C, C, which the patentee lines with wood, or wood covered with copper, to ensure a firm hold, or grip, of the drum, B; these bands, or straps, are formed of two parts, and are connected together by a pin at D, and at the other ends by links, E, F, to a lever, G, which turns upon an axis, H, attached to the framing of the carriage; and, upon this axis, there is fixed a ratchet wheel, I, which is acted upon by a pawl, K, which has its fulcrum upon a pin, L, in the arm, M, to which is also connected the end of the eccentric rod, N, of the eccentric, O; P, a click for taking into the teeth of the ratchet wheel, Q, a lever, which takes into a slot in the rod, R—such rod being connected by the lever, or arm, S, to suitable gearing, under control of the guard, or it may be connected to the buffer rod; U, V, are springs, for returning the parts to their original position.

The effect produced by this arrangement is as follows:—When it is required to retard the motion of the carriages, it may be effected by acting upon the rod, K, which will cause the pawl, K, and click, P, to take into the teeth of the ratchet wheel, I, when the action of the eccentric, O, will pull the pawl, K, and thereby turn the wheel and axis, H, and cause the straps, or bands, C, to grip firmly the drum, B, and effect the locking of the wheels. The patentee states, that this arrangement may be applied to one or both axles.

The buffing apparatus, before mentioned, and represented at fig. 4, is arranged in manner following:—A marks a cylinder of metal, bored perfectly true, and having an opening at one end, which communicates with an air-chamber, B, of any suitable form; C marks a piston, working air-tight in said cylinder, and fixed upon piston-rods, D, which work in stuffing-boxes at each end of the cylinder, and terminate in buffer-heads; D, an opening for charging the cylinder with water, or other fluid, which also occupies a part of the air-chamber, B, the other portion of which is filled with compressed air by any suitable apparatus. The effect produced by this arrangement is as follows:—Assuming the piston to be at one end of the cylinder, when the apparatus is out of action, it will appear evident that, upon the buffer-head, E, coming into collision with any obstacle, it causes the water to be forced through the opening into the air-chamber, the effect of which will be to compress the air still further, and thereby to offer a formidable resistance to the shock received by the buffer-head. The last part of this invention, which has reference to the adjusting of the bearing-springs to the bodies of railway carriages, consists in so arranging certain parts, in connection with springs, that the bodies may be readily adjusted at any time, to suit the variations in the height of the buffers, so as to preserve, as nearly as possible, a horizontal line throughout the entire train. At fig. 5, A marks an axle; B, the axle-box; C, the bearing-spring connected to the axle-box by a stem-piece, D, which has a screw cut about it; and the lower end thereof passes through a screw-nut, or collar, E, into the axle-box; and it is by turning this nut in one or other direction, that the carriage body may be raised or lowered. The patentee states, that the spring may be connected to the axle-box in the usual manner, and the adjusting screws, or stems, may be applied between the ends of the springs and framing of the carriage.

BRETT AND LITTLE'S ELECTRIC TELEGRAPH.—A lecture has been given, in the theatre, Cumberland, by Mr. Little, of the firm of Brett and Little, of London, the inventors of the Electro-Telegraphic Converter, the entire proceeds from which were given to the Whitehaven and West Cumberland Infirmary. We may remark that Mr. Little is superintending the fitting-up of the electro-telegraphic apparatus on the Whitehaven Junction Railway, which will be ready for use in the course of a few days, and is, of course, complete master of the subject he so kindly volunteered to explain and illustrate. Robert Falcon, Esq., M.D., was called to the chair, and briefly introduced Mr. Little to the notice of the audience. Mr. Little commenced his lecture by explaining the nature of electricity, and afterwards proceeded to point out the peculiarities of the apparatus now in the course of erection on the Whitehaven line, and the advantages he conceived it possessed over other telegraphic devices, especially in regard to mechanical contrivances, which he clearly demonstrated, were improvements on the mode of fitting-up for general use. At the close of Mr. Little's very interesting lecture, the thanks of the company, on the motion of Mr. Clarke, surgeon, seconded by Mr. Fiddler, surgeon, were cordially voted to him for his gratuitous services, and for the entertainment he had afforded all present. The gross receipts, amounting to upwards of 10*l*, were given to the infirmary, without any deduction.—*Cumberland Packet*.

BROWN AND CO.'S PATENT CELLULAR PLATES.

The economy of fuel and the application of steam are subjects which must ever be considered as of primary importance, whether as affects the saving attendant upon the one in a pecuniary sense, or the power acquired by the other, which is daily demonstrated by the results of our steam navigation and locomotive engines. It is not necessary that we should recur to the evidence of Mr. R. Stephenson, C.E., in the House of Commons, some 18 or 20 years since, as to the capacity of a locomotive, which he ventured to state might travel at 14 or 16 miles per hour without danger, although 60 to 70 miles have since been achieved; while by the application of steam to nautical purposes, 16 to 17 miles per hour have, we believe, been lately done by the Government steamer (the *Banshee*) between Holyhead, or Liverpool, and Kingstown: we purpose, however, on the present occasion, confining ourselves to the results attendant on the introduction of hot water through metal plates by way of orifices, or cells, connected with each other, whereby not only is a heat equal to 500° acquired, but the consumption of fuel rendered comparatively insignificant. That our readers may fully comprehend the patent under notice, and which we will endeavour more fully to describe, as the results of personal observation, we will at once proceed to give the specification of the patentee, which is as follows:—

SPECIFICATION.

The first of my improvements consists in forming cast-iron or other metallic tubes for containing or conveying fluids, in a heated or other state, in manner following:—To form a single tube, I take, in the first place, a pipe with overlap joint, formed of perforated block-iron or sheet-iron, and of diameter equal to the inside diameter of the intended tube. I coat this pipe, if of iron, with tin, or other metal, to prevent oxidation, and then fill it with loam, or compressed sand, to give it sufficient strength and firmness. I next fix this pipe in a proper cylindrical mould, of the usual construction, and pour cast-iron or other metal over and around it to the required thickness to form the intended tube. When the metal has cooled, and been cleansed of the loam or sand, it will be found to be perfectly incorporated with the perforated pipe, and to form with it a tube having a very uniform and smooth internal surface. Or, I sometimes prepare two such perforated tubes, of different diameters, but of equal length, so that one being fixed within the other, in a proper mould, the inner tube being filled with compressed sand, and the outer one surrounded with the same material, melted metal may be poured between the two tubes, so as to unite therewith. By these means, tubes of any required dimensions may be formed, without the necessity of employing core bars in the usual manner.

My second improvement consists in the construction of tubular plates of cast-iron, or other metals, such plates being of much greater length and breadth than thickness, and having a series of parallel tubular passages running through them (contiguous to each other), either longitudinally or transversely. Each of the said passages is made to communicate with two or more cross-tubes or passages of a larger kind, projecting either above or underneath the said plate, but all formed together in one casting. I next effect by connecting together any number of parallel cores of the usual construction, with two or more cross cores, their extremities being supported in proper casting frames or boxes of the usual kind, and melted metal cast over them to the required thickness, which will be regulated by the mould or pattern used. On the core bars being afterwards withdrawn, the apertures at the end of the main passages are then tapped, and a screwed plug, or so, as to render the same steam and water-tight. The open ends of the cross passages may have flanges cast to them, with bolt holes formed thereon, so as to facilitate their union with other tubular plates, or for allowing plates of metal, corresponding with the said flanges, to be screwed or bolted thereto, by means of nuts and bolts, with rings or washers placed between them, either for stopping up their end apertures, or for uniting pipes thereto for supplying the passages with steam or other fluids for heating the same, as hereafter described. In heating these plates with very high-pressure steam, I propose to make the end openings of these cross passages of a circular shape, and to form, at each end of the cross passages, a series of circular cavities around or within the same, and with corresponding protuberances on the flanged plates, and then to have these ground accurately together, metal to metal, and afterwards tightened as required, by nuts and bolts through the flanges thereof, as before described. Or metallic rings may be used, provided there are circular grooves turned and ground accurately to fit them; but I generally prefer dispensing altogether with the flanges and nuts and bolts, and in lieu thereof to have the circular end openings of the cross passages tapped and screwed, so as to allow of screwed metal plugs being inserted therein, which can be then screwed into them, or taken out, at pleasure; or the ends of pipes, properly screwed, may be attached to the end openings of the cross passages, for the purpose of conveying steam, or other heated vapours or liquids for heating the same. I further propose to let the cores by which the main series of passages are formed, terminate in one of the cross passages, instead of passing entirely through the plates, as before mentioned; which I effect by causing the end of the cores to rest upon, and be united with, one of the cores of the cross passages, whereby the expense of screwing and plugging up the apertures on one side of the tubular plates is saved. I also propose, instead of placing the cross passages underneath the said plates, as before described, to form them of the same size, and in the same plane, with the main series of cells, which may be effected by causing the main series of cores to terminate in the centre of one of the cross cores, by means of pins, or wires, fixed in the ends of the main cores, and supported in holes formed in the cross core, and then forming the opposite cross passage by means of short cores placed between each pair of the main series of cores, and extending outside thereof, so as to form, when the casting has been made, and the core-bars withdrawn, one continuous cross passage. By this method of employing short cores, the number of cross passages may be increased to any extent calculated to promote a more perfect and uniform distribution and circulation of the fluids employed for heating the same. I also propose to form the main series of passages at such distances apart, that each of the ribs of metal between them shall at all times be of greater thickness than the metal above or below the same—so that, in case of the plates bursting from excessive pressure, the fracture shall be thereby caused to take place along the top or bottom of the tubular passages in the direction thereof.

My third improvement relates also to the formation of tubular metallic plates. This I effect by connecting together any number of perfect iron tubes (though, in some cases, tubes of other metal may be employed), so as to form a parallel series with two or more other tubes running at right angles transversely thereto, and having conical or other shaped openings formed therein, suitable for receiving the ends of such parallel series, which ends are made to fit accurately in the said openings, and have collars, or grooves, formed therein, so that they may be retained firmly in their places by wires coiled around them and the transverse tubes. The ends of these transverse tubes are carried considerably beyond the main series, so as to admit of such ends being embedded in sand, or loam, or otherwise supported when placed within iron frames or boxes adapted for the casting of metals; so that iron or other metals, in a state of fusion, being poured over the said tubes so placed, tubular plates of any required thickness and other dimensions may be formed, according to any given model or pattern. It is advisable that these iron tubes, previous to having metal cast over them, should be coated with tin, or other metals suitable for preventing the oxidation thereof.

My fourth improvement has also relation to tubular plates. Instead of using core-bars covered with loam, or perfect tubes, as last before described, of strength sufficient to resist the pressure of the fluid metal in the process of casting, I bend thin strips of wrought-iron plate, coated with tin, into a tubular form, by bringing their longitudinal edges together, and forming a lapped joint, or by drawing such thin strips of coated iron, or iron-plate, through apertures, according to the size and form of the tubular cavities required, by means of a draw-bench; as is commonly practised for making copper and other tubes. These thin strips of coated iron have previously a great number of small holes punched through them (so as to allow the air to pass from within at the time of casting), and are then filled with sand, or other suitable material, compressed to a degree sufficient to give strength to the tubes, and the tubes so formed, in a similar manner as in the case of tubes for the conveyance of fluids, as before mentioned. The tubes are then placed in a series, and united with transverse tubes of a similar kind, into which their extremities are made to enter, through corresponding apertures formed therein; which transverse tubes are then also filled with compressed sand, or other material. Melted metal is finally cast over the whole, as before described; and, after they have been thus formed into plates, the ends of the parallel series of tubes, which protrude into the transverse tubes, may be secured by means of a series of drill-centers, and the sand, or other material, used in filling the tubes, cleared out from the tubular cavities by subjecting the plates to the effects of percussion in a proper position. By this new mode of casting (as in the previously-described method of forming tubular plates by casting metals over perfect tubes) there will be no openings to be plugged up (as in the first-described method with core-bars), and thereby a considerable saving of expense in that particular part of their manufacture will be effected. But, instead of forming these tubes so thin as block tin, and into a tubular shape by means of a draw-bench, as before stated, I sometimes make them of thick wrought-iron plate, equal in strength to the perfect tubes before described; I then fill them with sand, previous to casting, to prevent the melted metal running through the slits left where the edges meet together. These tubes I propose forming into shape, by passing properly cut pieces of sheet-iron through grooved rollers adapted for the purpose, such iron being first made red hot.

My fifth improvement consists in forming circular plates, with a series of circular cavities within them. These plates may be formed by means of a series of cores, radiating from the centre to the circumference, and then being united together by a series of short cores, or corrugated tubes, filled with sand, as before described, and a circular box at the centre, into which the ends of the core-bars may penetrate, and, after casting, be withdrawn; then the sand being cleared out, the apertures left may be tapped, screwed, and plugged up, as before described—there being proper openings, with pipes communicating with the circular passages, to allow of the admission of the vapours, or liquids, employed for heating the same. Or these cavities may be formed entirely with tubes, or tubes filled with sand (according to the previously-described methods of forming tubular plates); in either of which cases the plugging may be avoided, or the main series of cells may be formed by tubes, with metal cast over them in concentric circles, and united by others, radiating from the centre, or in any other form, so that a series of tubular cavities are united together by other cavities, so as to form one vessel of capacity for containing steam, or other vapours, or liquids, for communicating heat thereto.

The sixth improvement relates to wrought-iron cellular plates. I roll two sheets of iron so as to leave a series of projecting parallel ribs on one side thereof, of sufficient width to allow of cavities, or mortises, of a dove-tailed shape, being formed therein by planing-machines, and in each of the plates exactly opposite each other, so that tenon-shaped bars, or such as are formed to correspond with the said cavities, may be inserted therein, so as to bind the two plates firmly together. Or the ribs upon one plate may be planed, so as to slide in the cavities of the other formed to receive them; other cavities being made therein for containing the fluids by which they are heated; which plates may then be welded together around their edges by having the ends of the ribs cut away, so as to allow of square bars of iron being placed between the plates, forming a frame, to which the edges are welded, by hand, at a common forge, so as to render the whole perfectly steam and water-tight. Proper cross passages may then be drilled through the plates, to unite all the main passages together. Another mode of forming wrought-iron plates consists in placing plates, formed with ribs, one over the other, at a proper distance, in a furnace, so as to give them a welding heat, and bringing their ribbed surfaces suddenly together, and passing them rapidly between rollers, regulated so as to give the requisite pressure for welding the ribs together; the unwelded ends being afterwards prepared, and welded to flat bars of iron, and afterwards proper cross passages drilled, as before described.

Without entering upon the several claims set forward as the basis of the patent, we shall endeavour to describe the machinery, or its application as we have seen it in action—doubting not but that the variety of uses to which it may be applied, will render it one of the most important inventions of the day, whether considered with regard to its economy of time or money.

The nature of the patent, as applied in the several instances which we have seen, we will describe briefly—at the same time, that the simplicity of the mode of acquiring and applying heat, renders it unnecessary that our description should be of a lengthened nature. Its application is general, whether in the production of steam, as in steam-boilers, into which two

or more plates are introduced in baking, or as adapted to culinary purposes generally, or for the purposes of evaporation, and, indeed, to anything where an equalisation of heat is required, up to a temperature of 500°. In the first instance, we have a cylinder (say) 12 in. in diameter by 24 in. in length, which is placed in a vertical position—the coke, which is the charge of the furnace, being placed in the centre, to a depth of some 4 to 5 in., so as to heat the cylinder, which is open at top. This cylinder is composed of cast-iron, of about 2 in. in thickness, being perforated by about 30 holes, or cells, of $\frac{3}{4}$ to 1 in. in diameter, and at about a like distance apart, which communicate with each other by a transverse passage at the upper and lower parts of the cylinder—the ends of the former being closed by screws, or plugs.

The water is, in the first instance, injected into the cylindrical cellular boiler, where it becomes heated to the required temperature, and the several plates connected therewith, to which a pipe, forms the means of communication—being also, in like manner, filled with water, by a force-pump; the hot water, so produced in the cylinder, ascending to the plates, or other apparatus through which it passes, and from which the heat is emitted; the plates used are also about two inches in thickness, and cast with cells of about $\frac{3}{4}$ in., in like manner as in the cylinder described. The water is continually in action, or flowing; for, as the heated water ascends, so it displaces the volume immediately preceding it, and, forming a circuit through the plates, returns again to the cylindrical boiler below, as already described, thus keeping up a constant circulation; the fuel used is comparatively insignificant, while the heat acquired is equal to 500°, which is the extreme named by the patentees, although it has been known to have exceeded 720° or 730°.

Having thus briefly described the nature of the patent, as applied to the several purposes for which it is calculated, we will shortly advert to one or two modes of application. In land engines several plates are introduced in the boiler, which, conveying through the passages, or cells, in the plates, the hot water, at a temperature of 500°, gives a number of surfaces laterally, from the sides of which is effected the radiation of the heat, whereby it is assumed that a saving of fuel of 35 per cent. is obtained.

As regards its application to evaporation, we may give the result of an experiment made in our presence some months since. Into a pan, 4 ft. by 3 ft., formed of the cellular plates described, 8 galls., or 32 lbs. of water, was placed, which was in a state of rapid ebullition, or at a boiling point, in four seconds, and the whole quantity entirely evaporated in less than as many minutes.

As connected with salt-works, we are given to understand that, with the plates, 12 lbs. of pure water is evaporated with 1 lb. of coke—14½ lbs. having been effected; while at the salt-works, the usual quantity of saline water evaporated is about 6 lbs., or one-half.

In the case of baking, we may take a printed statement now before us, as showing the results of the application of the patent at the South Dublin Union, from which it appears that formerly the oven employed gave four batches in 12 hours, which consumed six bags of coal—the cost of which was 6s.; making an annual cost of 93l. 12s.—while, by the application of the new oven, or plates, five batches have been baked in the same time—being one-fourth extra; while the fuel consumed, that of coke, was attended with an expense of only 9d. in the 12 hours, or 11l. 14s. per annum—thus effecting a saving of 81l. 11s.; while one-fifth more baking is effected; in addition to which, it is stated, that there is a saving of 2 ozs. in every 4 lb. loaf—thus a 12-bushel oven would, working 14 hours per day, effect a saving of 300l. per annum. We have said sufficient to excite the attention and inquiry by parties interested.

We have been induced more particularly to advert to the patent of Messrs. Brown and Co. at the present moment, from the circumstance of its having been partially applied to the patented coffee-roasting apparatus of the late Mr. Dakin, whose melancholy death arose in the course of some experiments made by that gentleman, to which we have adverted in another column. It will be seen therefrom, that the accident occurred, so far as we can collect, and, indeed, as appears to us, from causes perfectly irrespective and independent of the patent under notice. This, however, we have endeavoured to explain, and must refer to the article in question for further detail, reserving until our next the evidence which may be offered at the adjourned inquest, and other observations on the subject.

FATAL ACCIDENT FROM STEAM EXPLOSION.

The adjourned inquiry into the cause of death of the late Mr. W. Dakin, who was killed on Friday, the 6th inst., by the explosion of a portion of the machinery employed by that gentleman for roasting coffee, for which he had taken out a patent, but which has not been specified, was held on Monday evening, the 15th inst., at the Parochial School-Room, Church Entry, Blackfriars.—Mr. W. M. Wilkinson was again present, to watch the proceedings on behalf of the family; and Mr. Edwin James (barriater), and Messrs. Sole and Turner, attended on behalf of Messrs. Brown and Co., the patentees of the cylindrical oven, to which the fatal accident was attributed.—The evidence given was not complete; and the inquest was adjourned until Tuesday next, when the jury will re-assemble at the London Coffee-House—much interest being manifested in the course of the inquiry, judging alone from the number of persons present; while its importance, as connected with the application of hot water under the patent, renders it one of moment, involving as it does a question of interest, affecting the economy which it professes to establish—while the safety is in itself the main feature on which the jury have to determine.

Mr. JOHN FAREY, of Guildford-street, Russell-square, was the first witness examined, who, in the course of his evidence, described the construction and dimensions of the oven, or cylinder; and, in giving his opinion as to the cause of the explosion, stated, that he believed such to have arisen from the water having a greater pressure than the metal was calculated to resist—the heat to which the water was raised being, as we understood, nearly 700°. The metal, or casting, of which the cylinder was composed, Mr. Farey described as being exceedingly porous and unsound—or, as is better understood by the term, "honeycombed." In describing this, the witness observed that, in the casting of the cylinder, the metal is poured direct from the cupola into a mould—the dross, or impure portions, of the iron naturally rising to the surface; and, as far as he (Mr. Farey) was enabled to form an opinion, it appeared to him that the portion of the cylinder which had given way, and which was the cause of the accident, was the upper part of the casting, which, for the reasons he had assigned, would naturally be the least perfect, although such must not be assumed as invariably the case—indeed, it was usual to avoid any failure in the casting, or its being rendered imperfect from such cause, to cast cylinders of this description of a greater length than that required—so that the extreme end might be cut off, and thus get rid of the impure metal, or faulty casting.

In reply to a juror, as to whether, in his (Mr. Farey's) opinion, the iron used in casting the cylindrical oven was the best pig-iron, that gentleman stated his perfect conviction such was not the case—but, on the contrary, that the iron used was "very bad;" particularly that in the section, or part, where the fracture took place. He did not consider the casting itself so strong as it should have been—portions of it, he had no hesitation in saying, were altogether defective, and contained small grains, almost like shot. Two plugs, which are used in closing the apertures formed by the tubes passing through the plates, had been forced out by the explosion. One of the tubes, or passages, referred to, had been stripped to a trifling extent, but not so much so as would warrant the inference being drawn, that it had been so affected before the explosion of the cylinder, or oven, took place. From the circumstance of the screws, or taps, being necessarily screwed in very tight, and being slightly tapered, he considered that they must have strained the iron almost to bursting before any heat was applied. He (Mr. Farey) had discovered a crack in the metal between the 7th and 8th, and 8th and 9th plug, or screw, from the vertex to the right, which he attributed solely to the effect of screwing in the plugs.—In reply to a question by the coroner, as to the opinion of the witness, whether he considered the mode adopted, of plugging a proper one, he stated—most certainly not. He objected altogether to the use of cast-iron in the construction of any machine which was required to bear a temperature of 500°—at the same time, he wished to qualify his observations, as to cast-iron, by stating, that, in his opinion, had the cylinder been properly cast of good metal, it would undoubtedly have been much stronger—as the case, however, under notice was, he could only express his decided opinion, that the metal used was of the worst description; while he was, moreover, strongly of opinion, that the cylinder, or oven, had not been properly cast.

In reply to Mr. E. James, on the part of the patentees, Mr. FAREY stated he was fully aware that, at the time of the explosion, the oven was embedded in lamp brickwork; but which, in his opinion, had no sensible effect on the metal, although subjected to a column of water passing through the apertures, or orifices, in the cast-iron plates of which the cylinder was constructed of 500 to 600°. He admitted, that the cylinder might have stood a cold pressure of 3000 lbs. to the square inch, which test might alone have brought it so much nearer to explosion. He (the witness) was fully aware, that the safety-valve was placed so as to relieve the pressure at 2200 lbs., but did not consider such was safe. In all cases of cast-iron machinery, in his opinion, it ought to possess strength sufficient to resist ten times the pressure at which the safety-valve is loaded, all high-pressure engines being made on that principle.

Mr. A. H. KENTON, who is foreman to Messrs. Robinson, concurred in the evidence given by Mr. Farey, except that he should have no hesitation in using cast-iron for high temperatures, assuming the casting to be perfect, and of sufficient strength to withstand the pressure.

The inquest stands adjourned until Tuesday, as previously observed; and in the interim we may direct attention to an article on the subject of the patent in another column, which we had prepared without reference to the melancholy accident under notice.

The following diagrams will illustrate the nature of the accompanying remarks.—Fig. 1, gives a section of the flat plate, on which principle the cylinders are constructed; a, the surface of the plate; b, section of the internal construction of the cells or passages, as cast in the plate for the reception of the water; c, the pipes for communicating with the boiler; d, screw plugs.—Fig. 2, a vertical section of the cells, with plugs.—Fig. 3, represents the cylindrical boiler, from which the heated water is emitted; a, the cast-iron cellular cylindrical boiler; b, section of the cells through which the water passes; c, the plugs at end of the cells or passages; d, the fire, or fuel, door; e, the pipes heating the external surface of the boiler; f, the fire, or fuel, door; g, the pipes through which the water is forced by the amount of heat, which, after being circulated through the upper cylinder (at a height of 35 feet), returns again to the bottom part of the boiler through the pipes, h, which are connected, as in pipe g, with one main; i, the ash-pit.—Fig. 4, is a side view of the cellular cylinder, in which Mr. Dakin's patent roasting apparatus is inserted; a, the cast-iron cylinder; b, the brick-work on which it rests.—C, section of the piece torn off by the explosion, which extends over a space of 9 cells; e, the horizontal and vertical intersection of the several passages, or cells, at the exploded part; f, the honeycombed portion of the casting; g, the pipe through which the water is injected from the cylindrical boiler; h, the return-pipe, or passage of water, after having passed through the cylinder, as described by letter h, in fig. 3; i, the pipe leading to the safety-valve; j, k, Mr. Dakin's roasting cylinder, supported at the one end by a pedestal, and at the other by a suspension bar, marked l; m is the wheel turned by a strap, being attached to the axle of the interior cylinder, to keep up the rotary motion.—Fig. 5, represents an end view of the cylinder; a, the thickness of the metal, with the plugged cells; b, the brick-work; c, the part torn away by the explosion; k, front view of Mr. Dakin's cylinder; l, the suspension-rod, as shown in fig. 4; f and g, the water-pipes, as described in fig. 4.—It will be seen by fig. 5, the point at which the cylinder was torn by the explosion; the effect of which is also shown in fig. 4.

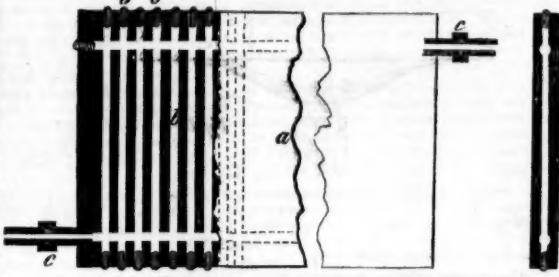


Fig. 1.

Fig. 2.

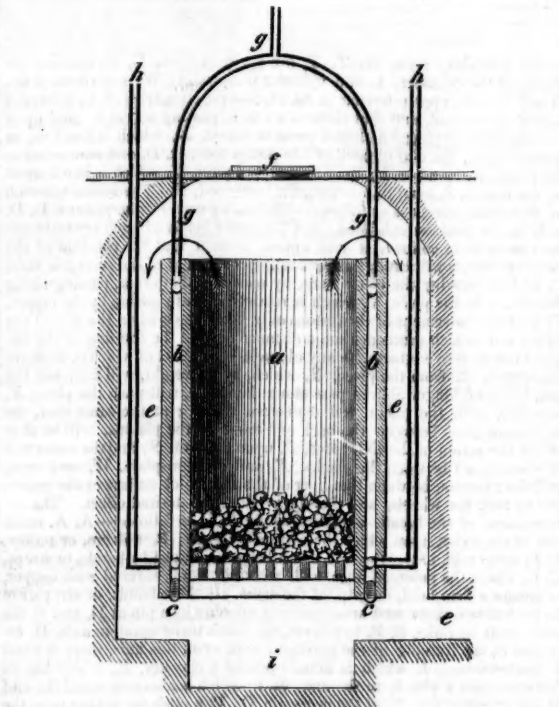


Fig. 3.

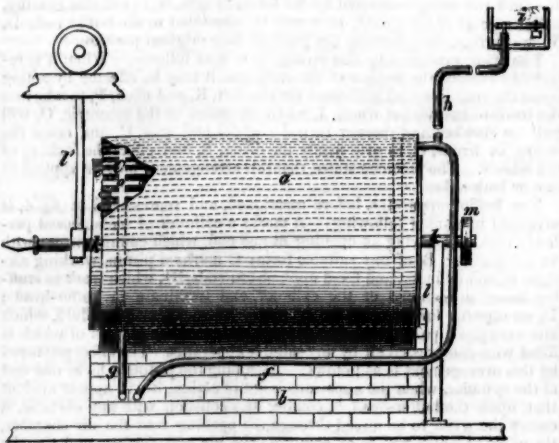


Fig. 4.

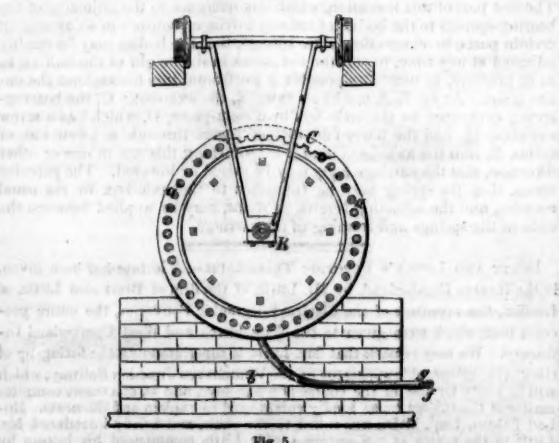


Fig. 5.

[Since the holding of the inquest, we have had an opportunity of examining the apparatus, and the scene of the accident, which we will endeavour to describe, perfectly irrespective of the evidence given, or the opinions which may be entertained by the patentees, or other parties interested. The apparatus consists of a cylindrical boiler, placed at the base of the building, being 12 in. in diameter, and 2 ft. in length, in which are 30 cells, communicating with each other, in a vertical position, through which the water passes, and is heated by a coke fire in the centre, as described in another column; from this a communication is made, by means of a pipe, to the cylinder, conveying the heat to the roasting-apparatus, or cylinder, which is applied therein—the height, or dis-

tance, which the water is carried being 35 ft. The latter cast-iron cylinder is 20 in. diameter in the interior, with a thickness of metal of 2 in., and the length 33 in., which is placed in a horizontal position; the perforations, or cells, being 47 in number, of $\frac{3}{4}$ in., which are intersected, or connected, with each other by a transverse tube, or aperture, within 2 in. from either end of the cylinder, the ends of the lengthened cells being plugged with screw-plugs, while there are only two apertures from the connecting pipes to the cells of which the cylinder is composed, by which the means of ingress and egress of the heated water in forming its circuits through the cylinder is obtained. On referring to the accompanying diagrams, which are essentially necessary to give a clear description of the apparatus, its nature will be better understood; while it will be now our object to offer one or two unbiased observations on the accident, and its causes. It appears from the information we have gathered, that the outer cylinder, from which the heat is obtained, was fixed, and the interior cylinder, lined with silver (Dakin's patent), was introduced, rotating with a play of about $\frac{1}{2}$ in.—thus filling the space of the interior, or vacuum of the outer cylinder; the coffee being introduced into the former, which, by a rotary motion, was subjected to the heat emitted. The apparatus being fixed, it was embedded in a mass or body of brickwork 14 in. thick, with a view of confining or retaining the heat, as with an oven, or furnace, and thus preventing the radiation coming in contact with the atmosphere, or the effects of the cold air on the iron surface. It appears, that upon the completion of the brickwork, the patentees' agents, or workmen, left the premises, giving instructions as regards the safety-valve, and directions that the heat should not exceed 700°, so as to allow the brickwork to dry before the machine, or cylinder, was put to work. It appears, however, that, within two hours after the erection of the walls and the covering, or enclosure, of the cylinders, directions were given by Mr. Dakin, or some party in his employ, to increase the pressure or heat; the consequence of which was, that the water, passing through the cells, or perforations, in the cylinder, was raised to the temperature of 600° to 700°, as manifested by the blue heat to which the rivets, or screws, were heated. The result, unfortunately, was the explosion, or bursting, of the outer cylinder, as shown in the diagram—the fracture being about 16 in. on the curve, and 6 to 8 in. in length on the run, or length, of the cylinder. It being the subject of inquiry, as to the cause of the accident, two causes are assigned—to one or other of which, if not of both, the accident is ascribed; the one the weakness, or damp, of the outer brickwork, whereby the expansion of the inner and outer surface of the cylinder were distinct, and a wide difference existing—the former having been proved at 500°, previous to the introduction of the interior cylinder, or the closing of the ends, by which the heat was naturally increased—while the temperature at the outer surface was depressed by the effect produced by the brickwork. On the other hand, it is maintained, that the accident is ascribable to the iron of which the cylinder is made not being of sufficient strength, and, more especially, the faultiness of the casting where the fracture took place—which we have examined, and can only express our opinion that such was alone calculated to have caused the accident without any other defect. As the adjournment of the inquest is to be held on Tuesday next, we reserve any further remarks, but shall return to the subject in our next; when we shall give a report of the evidence which may be adduced, and the opinions advanced by the scientific gentlemen, who, we understand, will be examined on the occasion.]

ON THE EFFECT PRODUCED BY HOT WATER, OR STEAM, IN CONTACT WITH IRON.

The following note, or anecdote, of past days, connected with science, will doubtless be read with interest at the present moment, and for which we are indebted to Mr. Andrew Smith, C.E.:—"The late Marquis of Worcester, being much interested in scientific pursuits, tried many experiments connected with the application and formation of steam, in the course of which, having visited Paris, he was shown through the lunatic asylum, where he came in contact with a patient of the name of Deaux, who was much excited on that particular subject, which naturally elicited the marquis's attention, and who at once questioned him as to his knowledge of its powers and application. In reply to which, the maniac stated, that he had invented a power which would, he was satisfied, be the regenerator of the world, and referred him to his pamphlet, dedicated to Queen Elizabeth, the reigning sovereign of this kingdom, and also to his pamphlet, dedicated to the then reigning monarch of France—it being observed, *en passant*, that the cause of his confinement was the publication and expression of his opinions on the subject of steam, which were ascribed to the emanations of a disordered mind. He died in the asylum, after having been confined a considerable time. The Marquis of Worcester, on his return to England, continued his researches, and the application of his mental energies, to the subject, being much strengthened in the opinions he had formed and the convictions he entertained, by the communications made, as above referred to. He accordingly commenced a series of experiments, with the view of testing and ascertaining the correctness of the data afforded by M. Deaux. In the course of these experiments, he charged, or filled, a piece of ordnance, of strong calibre, with water, hermetically closing the muzzle with a screw-plug, in proportion to the thickness or strength of the piece operated upon, and the touch-hole in like manner. The piece of ordnance thus being secured at the several apertures, and being filled with water, was subjected to the heat of a fire, or furnace; while it should be observed, that the plugs were screwed home, so as to come in contact with the water, and thus to exclude any air, so far as the compact of matter in that state could exist. At this period it may be remarked, that the effect of heat, or caloric, was comparatively unknown—and its effects upon matter, infinitely less—neither Dr. Black, Watt, or Lardner, being then in existence, and, consequently, not in a position to enter into, to discuss, or advance even a theory; while treatises on so important a subject may be said to have been then unknown. Upon the cannon, or piece of ordnance, being thus subjected to an extreme heat, the expansion of the metal naturally took place; whereby a space was left, which was filled, or occupied by the steam arising from the water, occupying the space so created. The metal, from the high temperature to which it was subjected, naturally became weakened, in consequence of the expansion of the pores of the metal—thus the force or effect. There is no existing law that we know of, in mechanics or chemistry, from which we can arrive at correct data. Wedgwood, and other eminent philosophers, or writers on heat, have done much for the benefit of society; but we are still in a state of chaos, or confusion of ideas, in that particular. It is useless to say, or even to contemplate the cause, while the result is well known—that the bursting of the cannon from the pressure within, and the deterioration of the metal, arising from its expansion, and the pores being opened, as already referred to. It becomes an important question as to the effect produced by heat. It will, we think, be admitted that heat is the parent of chemical power, and that gravitation is the parent of mechanical power; and what may be the effect produced on cast or wrought-iron, by air or water, at a high temperature, is yet unknown."

THE CONWAY TUBULAR BRIDGE—DINNER TO ROBERT STEPHENSON, M.P., THE ENGINEER.—At Conway, on Wednesday, this long-announced dinner took place. It was intended as a demonstration of public esteem, and a tribute of gratitude for Mr. Stephenson's successful exertions in planning, and ultimately erecting, that masterpiece of engineering skill—the tubular bridge over the River Conway. The Hon. E. M. Lloyd Mostyn, M.P., presided on the occasion. When returning thanks, after his health had been drunk, Mr. Stephenson said, six or seven years ago, he conceived the idea of a tubular iron bridge; but, when he first broached the plan, he was met on all sides by glances and expressions of distrust. He was not, however, daunted; but, conscious that the plan of a tube, made of cast-iron plates, was perfectly practicable, he proceeded to a series of experiments to test and develop the scheme, and the result was seen under the walls of their ancient and venerable castle.

THE HYDRAULIC ENGINE AT THE NEWCASTLE POLYTECHNIC EXHIBITION.—The question is constantly asked, how does the engine go by water? And, as much misapprehension appears to prevail on the subject, we shall endeavour to answer the inquiry. It will be observed, that the engine has two cylinders, lying at an angle with each other; each of these contain a piston, upon the alternate sides of which the moving power is exerted in the same manner as in the steam-engine. But where, it is asked, does the water come from, and where does it go to? The answer to this is as follows:—The water company have two main pipes in the adjacent street, one of which communicates with a reservoir at Carr's-hill, situate at an elevation of 120 ft. above the Tyne, and the other with a reservoir at the head of the lowgate, the height of which is 230 ft. above the same point, so that there is a difference of elevation between the two reservoirs of 110 ft., and a corresponding difference of pressure in the water supplied from each, which difference is equal to about 82 lbs. on the square inch. Now, the engine being connected by branch pipes with both of the street mains, the pistons are acted upon by the pressure of the Carr's-hill water on the one side, and by the opposing pressure of the Gallowgate water on the other, and the engine is consequently put in motion by a force equal to the difference between the two pressures. By this means the water, instead of being run to waste, merely passes from one set of pipes to the other, and remains available for the use of the town. The engine is worked by slide valves, which, we are informed, are so constructed as to afford very wide passages for the water, without occasioning an undue pressure on the face of the slides. There is also, we are told, an arrangement for liberating the water in the cylinders at the time when the valve ports are closed, which enables the engine to turn each stroke with the same freedom as a steam-engine. At any rate, certain it is that all impediments to the attainment of high speed and easy motion are removed in this engine, and there appears to be every probability of its coming into extensive use, not only in cases where steam-engines are considered objectionable, but also for many purposes where it will be found more economical than steam, and in others where it will be applied in substitution of manual labour. We congratulate Messrs. W. G. Armstrong and Co. on the production of this engine, which is novel and ingenious in design, and beautiful in workmanship.—*Newcastle Journal.*

ELECTRIC LAMP LIGHTING.—We understand that a young man of this town, named J. Southwood, has proposed to the town council the adoption of a plan which he has devised, and by which he confidently asserts that all the public lamps of the town may be simultaneously lighted and extinguished, without the intervention of lamplighters traversing the streets with their ladders. The agent by which it is proposed to do this is electricity conveyed by a single continuous wire to every lamp; and, moreover, by the same agent and by means of the same wire the lamps are to be cleaned. Thus, the work that now fully employs a number of men may be performed by one person, occupying him only a few minutes daily. We do not see any possibility in all this; on the contrary, we believe it may be done; and, as the inventor says, that any number of towns, or all the towns of the kingdom, might be embraced and illuminated simultaneously by the same galvanic battery; but, we are not prepared to offer any opinion as to the practical value of the scheme on economical and useful considerations, which must depend upon the expense of the apparatus, the cost of keeping it in repair, and of guarding it against wilful damage and accidental injuries; taking into account also the extent of inconvenience if anything goes wrong.—*Leds Intelligence.*

NEW PATENT.

W. Taylor, Birmingham, machinist, for an improved mode of turning up, or bending flat plates of malleable metals, or mixture of metals, by aid of machinery, into the form of tubes.—*Mechanics Magazine.*

Mining Correspondence.

ENGLISH MINES.

ANTIMONY AND SILVER-LEAD.—Captain Charles Williams (May 16) reports—We have commenced our deep adit, to cut the whole of the antimony lodes on the west side of the sett; we have finished our lobby, and driven about 6 fms. through standing ground. We have about 10 fms. further to drive to cut our first lode, being No. 1 on the map. On the east side of the sett, we have cleared out the adit driven by the old men for upwards of 25 fms.; the ground stands well without timber; we found, in the lower part of the adit, a lode 1 ft. wide, composed of gossan, jack, a little antimony, and good stones of lead ore—saving work. We have opened on this lode further to the hill, and found it the same as before. We intend to drive, on the course of this lode, about 18 fms. to the hill, where it will form a junction with the east and west lode (we have discovered in the higher end of our adit) at a depth of about 12 fms. Capt. Vivian, of Truro, was here last week to inspect the mine for some gentlemen in the country; he was much pleased with our operations, and likes the lodes much. I am glad to hear you have succeeded in reducing the dues from 1-12th to 1-15th, as this will make a material difference to the shareholders. We have, for the present, suspended sinking the shaft on our antimony lode to the hill, as there is a large quantity of water in the shaft, which the hot weather, I hope, will dry up.

BARRISTOWN.—Capt. T. Angove (May 12) reports—The stopes at Nangle's, in the bottom of the adit level, are not looking altogether so well as last reported—producing at present rather over $\frac{1}{2}$ ton per fm. the pitches in the back of this level are producing about $\frac{1}{2}$ ton per fm. We have commenced driving south from the bottom of eastern flat-rod shaft. In the cross-cut, south from Slob shaft, we have good ground. The pitches in the old mine are producing but a small quantity of lead.

BEDFORD UNITED.—Capt. Thos. Elbery (May 17) reports—At Wheel Marquis, in the engine-shaft, the sumpmen have been engaged, during the past week, casing and dividing the whim-shaft under the 80 fm. level, and driving the cross-cut south in the 90; I hope to get the whim to draw from this level by the latter part of this week. The lode in the 90 fm. level, east of the sump-wine, is 3 ft. wide, 18 in. of which producing good work; the 90 fm. level west is without alteration since my last report, and progressing favourably; the stopes, in the back of the 90 fm. level, is worth 45 $\frac{1}{2}$ per fm.; in Hodges's rise, in the back of the 90 fm. level, the lode is 3 ft. wide, producing saving work. The lode in the 80 fm. level, east of sump, is 18 in. wide, producing good stones of ore. The 70 fm. level east is without alteration. The lode in the 47 fm. level east is 18 in. wide, with spots of ore throughout. The lode in the winze, sinking under the 70 fm. level, east of sump, is 2 ft. wide, producing good work. At Wheel Tavistock lode, in the 47 fm. level, west of Phillips's shaft, little has been done during the past week, the men being employed erecting the whim and clearing the stuff. In the south lode, in the 25 fm. level, east of the engine-shaft, the men have been driving by the side of the lode; the lode in the adit level, on the south lode, is 18 in. wide, unproductive at present.

COATLITHE HILLS.—Capt. J. M. Paull (May 18) reports—The men have been employed in opening a little eastward on the course of the vein, and find it varies from 3 to 4 ft. in width; it is producing some very good stones of lead ore, and has every appearance of answering well, if explored further into the hill.

COMBLAWN.—Capt. J. Hosking (May 16) reports—Capt. Tabb has this day inspected Comblawn Mine, and I have no doubt but you will have his report to-morrow. We have put a solar in the shaft 5 fms. below the 10 fm. level, and have taken out some of the lode; it is about 1 ft. wide, and ore throughout; you will bear in mind, that this is the middle lode; we have sunk about 4 ft. on the lode in the adit level east; it is about 2 ft. wide, composed of gossan, prisan, flookan, and friable spar—a promising lode, underlying about 1 ft. 6 in. in a fm.; this being only 10 ft. below the surface, we have suspended the sinking of it for the present. In sinking north of the engine-shaft, on the main lode, we have intersected several branches, varying in size from 3 in. to $\frac{1}{2}$ in.—rich in quality; in fact, we are saving out some excellent work; from these favourable indications, we expect that when the footwall of the lode is met with, a decided improvement will then take place; and that in sinking a few fathoms on the lode, we shall be able to ascertain its exact angle of depression. Capt. Tabb will, no doubt, in his report, explain to you the nature of the lodes, both at the north and south mines, and make some remarks relative to their underlays and bearings; then the directors will, in all probability, be able to form some opinion why the lode has not yet been intersected in the cross-cut in the 20 fm. level. I hope to be able to see more of the lode in the whim-shaft (before alluded to), in driving east from the engine-shaft, on the middle lode, in a day or two, when I will forward you all particulars.—May 18.—We have this day met with the footwall of the lode in the new whim-shaft; there is a beautiful flookan on it, making the lode 15 in. wide, good saving work. Since yesterday morning the men have broken from the lode and branches 14 whim kibbles. I have set the shaft to sink at 55s. per fm., and 1s. 6d. in 17. tribute; the underlay of the lode in the shaft is about 9 in. in a fathom.

—Capt. John Tabb (May 18) reports—I visited Comblawn Mine on Tuesday; the water being in, kept me from going below. Capt. Hosking says, they have driven a cross-cut north 5 fms., to cut the main south underlayer, which you will see marked on the sketch; the lode at surface underlies about 2 ft. in a fathom; should it continue so, it will take a cross-cut 5 fms. 4 ft. to intersect it in the 20 fm. level. From what Capt. Hosking stated, I should say they will have about 4 ft. of ground to lay open in the 20 cross-cut; had the water been out, I should be able to speak more explicitly.

CWM ERPIN.—Captain S. Nicholls (May 13) reports—The shaft is down 4 fms. 3 ft. The lode is looking promising at present, with some stones of ore in it; the men have only sunk 3 ft. this week, on account of an accident to the rods. The east end is poor at present; the men have driven 3 fms. 5 ft. this month, and hope, by the end of another month, to get into ore ground, as the old men sunk and stoped in the level above as far as they could for water. The stopes, west of whim-shaft, is looking much better than last reported, worth 10 cwt. of lead to the fm.; the stopes, east of whim-shaft, are looking very well, worth 1 ton of lead to the fm. The stopes, west of the eastern shaft, is worth 7 cwt. of lead to the fm.

DEAN PRIOR AND BUCKFASTLEIGH.—Capt. H. Choake (May 17) reports—We are getting on with the sinking of the engine-shaft with all possible speed; and, in the course of three or four days, we shall be in a position for fixing the cistern and the pitwork in the 80 fm. level; the stamps will be completed by the latter end of the next week; having had to make the necessary preparations for sinking, has somewhat impeded the progress. In the 30 fm. level, east of the cross-cut, the north part of the lode still maintains its very promising character—being large, and producing saving work; in the end, driving west, the north part of the lode is improving, and producing good stones of ore; the improvement that has taken place in the two levels is very encouraging, and holds out the most favourable expectations in the level below—that is, in the 40 fm. level; therefore, we shall lose no time in sinking the engine-shaft 10 fms. below the present bottom level, in order to cross-cut to the lode, being so desirable an object.

EAST CROWDALE.—Capt. S. Paull (May 13) reports—That the ground in the 58 fm. level, driving north, still continues hard and spare to drive, the Killas being much mixed up with branches of spar; the ground in this level south is tolerably favourable for driving, and is in a good killas country. The 47 fm. level west is still poor—lode about 14 in. wide, composed of capel, killas, spar, and spots of ore; the rise and stopes in the back of this level still produce some ore of a good quality, although the quantity has fallen off of late, owing to the ore ground coming shorter; the lode in the winze sinking below this level looks very well, is about 2 ft. wide, composed of peach, spar, muncie, and copper ore. I hope in my next report, to state the quantity raised in the past week. The men have been obliged to take down a piece of the side of the level. The lode in Diamond's engine-shaft, at Rix Hill, continues to hold in size and appearance, and produces some good tinstuff, is 4 ft. wide, composed of peach, capel, elvan, and tin. The engineers are busily engaged in fixing the engine at this shaft.

EXMOOR WHEEL ELIZA.—Capt. Whitford (May 16) reports—On my visit to the above mine this morning, I found the lode in the winze full 9 ft. wide; its underlie south is 1 ft. 9 in. per fm.—the component parts of which are gossan, prisan, and a considerable portion of muncie. This singular and extraordinary lode demands more than ordinary attention, as its size and indications are so extremely inviting; but, in consequence of the great influx of water, it is absolutely impossible to continue the winze; therefore, it was thought proper to drive a cross-cut north in the 12 fm. level, to intersect the lode in the winze, which is being set at 7 $\frac{1}{2}$ per fm., and I hope will be accomplished in six weeks from the present date, when you may reasonably anticipate something good.

GREAT MICHELL CONSOLS.—Capt. T. Richards (May 17) reports—We have commenced driving in the 45 fm. level, both east and west of the sump-wine—the lode presents much the same appearance in each of the ends, as in the last few feet sunk in the winze, containing muncie, floor, and spar, with ore intermixed throughout—very promising. In the 35 fm. level, west of the sump-wine, the lode consists of muncie, capel, spar, and ore. We sampled at Wadebridge, on Monday last, a parcel of ore computed at 60 tons.

HERODSFOT.—Capt. John Madlen (May 16) reports—Since my last report of the 28th of February last, the engine-shaft has been sunk below the 34 fm. level 7 fms.; the 94 fm. level is driven north 8 fms. 3 ft.; the lode in this end is 3 ft. wide, producing three-quarters of a ton per fathom; it is much richer than when first cut into; this level is driven south 8 fms., where we have had branches of the lode, from 6 in. to 1 ft. wide; we are now driving west to cut the lode; we have in the north end. The 82 fm. level is driven north 12 fms. 2 ft.; the lode is $\frac{1}{2}$ ft. wide, producing three-quarters of a ton

per fm.; this level is driven south 13 fms., where the lode is $\frac{1}{2}$ ft. wide, producing a ton per fm.; in a winze, sinking below this level, 15 fms. south of the engine-shaft, the lode is $\frac{1}{2}$ ft. wide, producing $\frac{1}{2}$ ton per fm. The 72 fm. level is driven north 6 fms. 3 ft.; the lode in this end is 1 ft. wide, producing $\frac{1}{2}$ ton per fm.—this end is extended the farthest north of our levels; the 72 fm. level south is driven 5 fms. on the western part of the lode, where the eastern part has been cut into and found to be 2 ft. wide, producing three-quarters of a ton per fathom; the horse, between the two parts of the lode, in the present end, is 2 ft. wide; at 5 fms. further north it was 6 ft. wide. The 62 fm. level is driven north 6 fms.; the lode in this end is 1 ft. wide, producing three-quarters of a ton per fathom; a rise has been put up, in the back of this level, 5 fms., where we have had good bunches of ore; but at present is poor. The rise in the back of the 52 fm. level, against Winsor's shaft, is up 8 fms.; Winsor's shaft has been sunk 8 fms., which makes it about 40 fms. from the surface; we expect to hole this shaft to the rise in about three weeks. We have 11 tribute pitches, working at an average tribute of 3 $\frac{1}{2}$ 10s. per ton, from which we are raising about 70 tons per month, which will about meet the present cost, and which is greatly increased by raising stone for the new engine-house, making new dressing floors, sinking Winsor's shaft, rising against the same, horse labour for drawing stone, working Winsor's whim, &c., &c.; the new engine-house is nearly completed; if we can have the engine at the time appointed, we shall get it to work in about five or six weeks; soon after which, we hope to raise 120 tons of ore per month.

HOLMBUSE.—Captain W. Lean (May 16) reports—We have commenced driving the 132 fm. level, west of the diagonal shaft; the lode is split into several small branches, composed of muncie, spar, and spots of copper ore. The lode in the 120 fm. level south is 6 ft. wide, composed of spar, white iron, and stones of lead, all of which is saved. The lode in the 110 fm. level south is 4 ft. wide, composed of quartz, and stones of lead, worth 4 $\frac{1}{2}$ per fm. The lode in the 100 fm. level south is 3 ft. wide, composed of soft spar, spotted with lead (saving work for the stamps); the lode in the rise, above this level, is 2 ft. wide, producing stones of lead; the lode in the winze, sinking below this level, is 20 in. wide, composed of spar and lead, saving work. The flap-jack lode, in the 100 fm. level east, is 3 ft. wide, composed of a great quantity of muncie, blende, and stones of copper ore, with favourable ground for exploring. The lode in the 90 fm. level south is 20 in. wide, composed of spar, flookan, and a small quantity of lead. The tribute pitches, on the whole, are yielding a fair quantity of lead, and the men earning fair wages.

KIRKCUDBRIGHTSHIRE.—The agent (May 18) reports—In the 50 fm. level, west of Stewart's shaft, rising against the winze on the north lode; we have not taken down the bearing part of the lode for the week—we expect to hole in a few days—neither have we taken down the lode in the winze. The lode in the 40 fm. level, west of Stewart's, is still large and kindly, producing 1 ton of lead per fm.; same level, west of Keith's shaft, lode 3 ft. wide, yielding half a ton per fm.; in the 40, east on the counter, lode 3 ft. wide, with a good branch of lead on the north wall. In the 30 fm. level, west of Keith's, lode above 4 ft. wide, making half a ton per fm.; in the 30, east of Stewart's, lode 3 ft. wide, producing fine stones of lead. We consider that this level is fairly through the dead ground.

MENDIP HILLS.—Capt. F. C. Harper (May 15) reports—The lode in the 38 fm. level south of shaft is become much smaller than when I last wrote, being at present not more than 1 ft. wide, composed of iron, spar, and a little flookan, near the foot wall side—ground hard for driving. In the slag department, I am glad to inform you, we have a decided improvement in the quality of the work at present removing to the dressing floors. The beds of stuff through which we are extending the open cutting, towards the eastern part of the valley, continue about 12 ft. thick in the centre of the valley, and gradually diminish in thickness on either side. The entire breadth of the slag-stuff, at the point we are now working, is about 34 yards. Since the 1st inst. we have extracted 5 tons 4 cwt. 2 qrs. 26 lbs. of metal, and hope, by Wednesday, to have sufficient slags prepared to keep us smelting the remainder of the week. I have arranged to forward the two parcels of lead to Bristol this day and tomorrow, and, on the following day, I hope to see it shipped for London.

SOUTH DOLCOATH.—The mine agent (May 17) reports—I have inspected South Dolcoath Mine, and beg to hand you my report. The engine-shaft is sunk to the 50 fm. level on the course of the lode; the lode is 3 ft. wide, composed of spar, peach, and flookan, with some spots of ore; I would recommend sinking the shaft 2 or 3 fms. more, as there is a branch now dropping into the same from the south. The 40 fm. level is driven west of the shaft about 12 fms.; the lode in the end is about 2 ft. wide, and looking kindly; I would recommend driving this level. Also, the 50 fm. level west, thereby insuring good ventilation; about 100 fms. west this level will intersect the great cross-course, where all the lodes in the vicinity have proved productive; the ground, at present, may be driven for 3 $\frac{1}{2}$ per fm. By sinking occasional winzes from the 40 to the 50, these levels may easily be driven, and the workmen have good air.

SOUTH WHEEL TRELAWNY.—Capt. W. Jenkin (May 16) reports—We are driving the cross-cut, west of Snell's engine-shaft, and cutting ground for plant, with 9 men, in the 30 fm. level. Also, in the latter part of last week, we have been engaged in casing and dividing down the whim-shaft from the engine-shaft.

TRELEIGH CONSOLS.—Capt. William Symons (May 13) reports—In the 120 fm. level, at Christie's, we have cut the lode, which is 3 ft. wide, with a north underlay; it is spar and caples—poor. In the rise, above the 100 east, the lode is 14 in. wide, but little ore. Garden's shaft, below the 100, is sinking in the country; in the 100, east of ditto, the lode is 1 ft. wide, no mineral; in the 100, west of ditto, the lode is 2 ft. wide, producing good stones of ore. In the 90, west of ditto, the lode is 15 in. wide, with occasional stones of ore, not to value. In the rise, above the 80, the lode is 18 in. wide, with stones of ore, but not to save for dressing. In the 70, west of ditto, the lode is 2 ft. wide, worth 3 $\frac{1}{2}$ per fm., and has a very promising appearance; in the winze, below the 70, the lode is 20 in. wide, with stones of ore only. In the 60, west of ditto, the lode is 20 in. wide, worth 6 $\frac{1}{2}$ per fm. In the 50, west of ditto, the lode is 1 ft. wide, worth 3 $\frac{1}{2}$ per fm.; in the adit east, on Wheel Parent lode, the lode is 2 ft. wide, worth 5 $\frac{1}{2}$ per fm.; in the adit, north of engine-shaft, we have not yet cut the lode, but did expect it before this.

WEST WHEEL JEWEL.—Capt. Thomas Bray (May 15) reports—In the 57 fm. level, west of Williams's cross-course, on Wheel Jewel lode, the lode is 23 ft. wide, worth 16 $\frac{1}{2}$ per fm.; in the 57 fm. level, east of Williams's cross-course, on the same lode, the lode was not taken down in the past week. In the 70 fm. level, west of Williams's cross-course, on the same lode, the lode not taken down in the past week; in the deep adit, west of Hodges's cross-course, on the same lode, the lode is looking more promising for ore than when last reported. The stopes, in the back of the 12 fm. level, west of Pryor's winze, are looking well, worth 35 $\frac{1}{2}$ per fm.; the men that have taken the 12 fm. level are stopping these stopes, until we can clear the tin-work for them to drive the 12 fm. level west. No lode has been taken down in any other part of the mine in the past week.

WEST WHEEL MARIA.—Capt. Rodder (May 16) reports—The western engine-shaft is down below the 64 fm. level about 9 fms. 2 ft. We hope to complete the sinking this 10 fms., and resume driving south to cut the lode in the 74 fm. level, about a fortnight from this time. In the 34 fm. level, west of Vivian's shaft, no lode taken down in the past week.

WHEEL BENNY.—Capt. J. Tabb (May 15) reports—You are already in possession of full information as to the nature of the lodes discovered, and I beg to hand you the following report thereon:—Ford shaft is sunk from 6 to 7 fms. below the 20 fm. level, and shall have to go down 3 to 4 fms. deeper, where we intend to drive a cross-cut, to intersect the lode, which held such an encouraging appearance in the 20 fm. level. The general appearance of the Benny lode is also of a promising character, and we may expect it to prove productive in depth; the situation of the shaft is well adapted for the development of these lodes; a cross-cut, sunk south about 14 fms., would intersect the Benny lode in the 30 fm. level, calculating the lode's underlay to be 3 ft. in the fm. In the meantime, we shall be in a position to cut through the Ford lode in the 20 fm. level cross-cut south. We shall have to drive about 18 fms. to intersect the Champion lode south, supposing its depth to be the same as the Benny lode.

WHEEL MARY ANN.—Capt. Peter Clymo, jun. (May 15) reports—The lode in the 40 fm. level, south of the boundary, is 3 ft. wide, worth 8 $\frac{1}{2}$ per fm. Barratt's shaft is sunk 8 fms. under the 30 fm. level, where the lode is 4 ft. wide, worth 10 $\frac{1}{2}$ per fm.; the lode in the 30 fm. level, south of Barratt's shaft, is 4 ft. wide, worth 10 $\frac{1}{2}$ per fm.; Pollard's shaft is sunk 3 fms. under the 30 fm. level; the lode in the 30 fm. level, north and south of Pollard's shaft, is 14 ft. wide, composed of can and some lead. The lode in the 15 fm. level, south of Pollard's shaft, is 14 ft. wide, but at present not producing much lead. The stopes generally are looking well.

WHEEL TRELAWNY.—Captain J. Bryant (May 16) reports—We have sunk 6 ft., under the 62 fm. level, in Phillips's shaft, and have nearly completed cutting the tip-plat—when finished (which will be in a day or two) we shall immediately proceed with sinking under; the lode in the 62 south is still large, and improved since my last report, worth at present 12 $\frac{1}{2}$ per fm.; in this level north the lode is worth 9 $\frac{1}{2}$ per fm. The lode in the 52 north is worth 9 $\frac{1}{2}$ per fm.; in this level south, the lode is still large, and a little improved, opening ground that will pay well for stoping; the lode in the winze, under this level, is large, and worth 24 $\frac{1}{2}$ per fm.; the stopes in the back are yielding a fair quantity of lead, but the ground is rather hard. The lode in the 42 north is 3 ft. wide, composed of can, spar, and lead, with soft blue elvans intermixed, worth 7 $\frac{1}{2}$ per fm.; the stones in the back of this level are similar to my last report. The lode, in stoping the back of the 32 fm. level, is not yielding so much ore as when last reported on. I cannot speak of any change in sinking Trelawny's engine-shaft, or in the 22 cross-cut east. At the north mine, we find the lode to be nearly perpendicular in rising against Smith's shaft, where it will yield about 5 cwt. of ore per fm. We have about 20 ft. more to sink and rise, to hole the shaft to the 30 fm. level, which, if the air do not prevent the men from working, will be completed by the latter part of this week.

SILVER-LEAD MINES IN SWITZERLAND.

Sir,—I deem it my duty to notice a letter on these mines, signed by "Molyneux and Co.," 140, Strand—not for the purpose of contradicting the statements therein made, but to correct an error in dates, which, though material, I believe to have been unintentional. Mr. Boyet arrived from Switzerland on the 15th of April, but the gentleman who had visited the mine did not arrive until the 17th or 18th; and a meeting was held on the 19th, at which, and subsequently, Mr. Boyet expressed his annoyance and disappointment that a sum of money, which had been fixed upon, and which he was led to believe was ready for him on his arrival in London, was not forthcoming. Mr. Boyet conceded a delay until the 26th ult., when the parties not being prepared with the required amount, he repudiated all further treaty; that gentleman then proposed terms with certain of the parties who had been engaged in the former negotiation, and who were ready to have executed their part thereof, which I have had the satisfaction of carrying out. The original documents, in English and French, are in my possession, signed by all the parties—the terms of which are known to Molyneux and Co.; and I have also in my possession the following letter from Mr. Boyet.

4, Queen-street, Cheapside, May 18.

London, May 10, 1868.

DEAR SIR,—I hereby authorise you to contradict any statements which may appear in the public journals, or otherwise, alleging any sale of the property of myself and partners in any mines in Switzerland, except to your clients, Messrs. Blanch, Truscott, and Mosker, as per contract of this date, and remain, Yours truly, BOTET RICHARDS.

LEAD MINES.

Sir,—I should feel obliged if your correspondent will name a few of the tedious little wheals which have started up at the success of Trelawny. I have been in this part of the county three years; and I cannot remember seeing or hearing of any sett tried within two miles of Trelawny, except the Mary Ann, South Trelawny, and Trehane. Trehane has given six dividends in the past year, and now in her infancy. Wheel Mary Ann, I hear, is improving fast; the last parcel (62 tons) fetched 18 $\frac{1}{2}$ ls. 6d. per ton. At South Trelawny, they expect to see the lode in a short time. I shall be glad if your correspondent would name the tedious wheals, and their expenditure; and I hope he will not bring us into the Caradon district, but let every locality bear its own burthen.—A LEAD DRESSER: May 18.

THE TUTWORK AND TRIBUTE QUESTION.

Sir,—Throughout the discussion of these subjects, a great deal of time and space has been unnecessarily occupied in treating on matters which do not bear upon the real question in dispute; and, as a detailed reply to your two last correspondents would occupy more time than I can at present conveniently afford, I shall, as briefly as possible, direct their attention to the subject which gave rise to these remarks, as it appears to me that, in the course of their somewhat lengthened observations, they have not given my principal objection sufficient consideration. "A Mine Agent," at the outset, being dissatisfied with the old mode of setting tutwork and tribute bargains, proposed a new plan, which, he contended, would prove highly beneficial both to the employer and the labourer; and he has subsequently been assisted by the two correspondents before referred to. The plan proposed is to the following effect:—"The agents of mines are, before the survey day, to fix what they consider a fair price for the work required to be performed; and, when the time for setting arrives, for the purpose of causing what he calls fair competition, they are to ask the miner if he will take it at half that sum." Now, without at present considering whether the old system is a good one or not, I repeat the question contained in one of my former letters, but which remains unanswered—viz.: "Is it fair for a mine or any other agent to set, or even offer, a bargain to a poor labourer at a sum one-half below what he conscientiously believes to be a fair price?" This is the main question at issue between us; and, unless we come to something like an understanding on the point, we may continue to argue irrelevantly until the gathering of the Jews, without arriving at a satisfactory conclusion on either side. It has been stated, that too much reliance is placed on what is called the "captain's price"; and an example is given to show their inability to err in their calculations. I am aware that mine captains are fallible, and, consequently, liable to be mistaken in common with others; but I maintain that they certainly are, or should be, the best judges as to the price of a fathom of ground, and ought not to require the assistance of the labouring miner to bear them out. I am, therefore, still of opinion, that any system that will encourage men to cut each other down to such an extent as the one before us, is, to say the least of it, unfair, and will not bear the test of an impartial examination.—FAIR PLAY: Tavistock, May 2.

THE TUTWORK AND TRIBUTE QUESTION.

Sir,—In referring once more to the method of setting mine labour, I am sorry I cannot adopt the same language as my friend, Capt. John Richards—viz.:—"I receive your interesting and instructive Journal every Monday morning;" for it so happened that I received your last four Journals by one post—viz.: those dated the 15th, 22d, and 29th of April, and the 6th of May: now, in case you can account for this mistake, I shall feel obliged by your being so kind as to inform your readers how it originated.

I much regret that the few observations I have already made on the mode of setting mine labour should have been such cruel annoyance to Capt. Seymour. He wished to be informed, what are the evils of the present system. Now, as they are so fully and clearly pointed out, in your Journal of the 29th of April, by my friends in the west, I hope he will excuse me in not going over the same ground again; for I can bear ample testimony to the facts they allude to, on the general mode of fixing the captain's price; for I have known two captains, in fixing their price on an end, to differ as much as 2 $\frac{1}{2}$ on ground of about 6 $\frac{1}{2}$ per fm.; and I have seen as much difference, in proportion, in fixing this price on a tribute pitch. I contend there is no one more competent to judge the true price of a pitch, or bargain, than the practical pickman; and I see no reason why the adventurers should be excluded from the benefit of his judgment. There can be but one opinion as to the motive of any man taking a 3d. pitch, or a 3d. bargain, so well explained by Capt. John Richards. Now, in taking leave of Capt. Seymour, I fully agree with the agents of Perran St. George United Mines, that he is quite capable of fixing wrong constructions on the plainest language; and, with regard to his challenge to meet him at Tavistock, I beg respectfully to decline the offer, on the same grounds as stated by my friends of Perran St. George United Mines. Notwithstanding, in case I may be requested to meet any respectable company of mine adventurers, in order to discuss the matter, I have not the least objection to do so. Chillerton, May 9. A MINE AGENT.

TUTWORK AND TRIBUTE.

Sir,—I should not have troubled you again on this subject, had I not seen in your valuable columns a letter from Mr. Richards, of Perranzabuloe, and having already sent you three communications thereon, I cannot, in justice to myself, let his remarks go by unnoticed; I hope you will, therefore, afford me a little further space. Mr. Richards says—he has read over and over again, the letters which have appeared in the *Mining Journal* from me and others, and that he has carefully weighed their respective merits; and, at once, came to the conclusion, that those who are opposed to the new mode of setting are wrong. I, however, am still of the same opinion as I was before; and am quite assured that, were the new plan in operation throughout the two counties, it would prove one of the greatest evils that ever affected mining industry. There are in all mines many old pitches, which are taken by tributaries under the idea that, if they should have the good fortune to make a good discovery, although it might be near the end of their take, they should have opened a pitch for themselves; and, though they may have made little, they expect only a fair price for the next; many such instances have come under my observation, and which have proved very prosperous to the adventurers—been the very means of keeping the mines at work, and kept hundreds in employment, who would probably, but for such discovery, been discharged, and the mine "knacked." Under the proposed plan, what man would take a piece of ground with no ore in sight, and labour and toil for a month or two to get it in case for another? I am opposed to many things connected with the old mode—such as setting in the middle of the month, or at what had been got in the first bargain, telling the contractor it will get him 50s. per month, which must be the standard; these are evils which ought to be remedied. I can assure Mr. Richards, my desire is to do good, and not evil. I am sorry he did not weigh well his own remarks before sending them to the press; for, if he be a mine agent, he, as well as the Perran St. George agents, have exhibited a sad want of judgment in fixing their prices. I am determined to use my weak influence to secure the interest of the working miner, and, at all events, not let it retrograde; I have no bad feeling to Mr. Richards, or any other person, and I hope I shall be taken for what I am—an honest-hearted and open-minded man. I now take my leave of all these opponents, and shall be most happy to see any, or all, of them some time during the ensuing summer.—J. SEYMOUR: Caradon Wheel Hooper, May 9.

ACCIDENTS.

The Colliery Explosion at Risco.—A letter from Newport, dated Wednesday morning, says—Risca has again had one of those frightful visitations, an explosion of fire-damp, which occurred yesterday morning at the Lower Pit, in the colliery of Messrs. Russell and Co., at Risco, near this town, by which two unfortunate colliers were immediately killed, another so seriously injured that no hopes are entertained of his recovery, and four others more or less hurt. This is the third or fourth explosion which has occurred within a year or two, the latest of which, previously to this, was a fearful extensive disaster. The event which occurred yesterday has caused extreme surprise, as the previous explosion of the pits in this colliery left an impression on the public mind, that proper steps would be instantly adopted to prevent, so far as human means could do so, a recurrence of such terrible calamities. A Government commission was sent down after the great explosion

* We insert this, to show the inconvenience to which many of our readers are put by the non-delivery of the Journal. The fault evidently lies with the post-office—most probably in the Chillerton district; and it must be clear, that no precaution or exertion on our part can remedy such careless irregularity.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.	
Bank Stock, 9 per Cent., 1904 92	Belgian, 3 per Cent., 61
3 per Cent. Reduced Ann., 84 1/2	Dutch, 3 per Cent., 49
3 per Cent. Consols Ann., 84 1/2	Brazilian, 5 per Cent., 62
31 per Cent. Ann., 83 1/2	Chilian, 6 per Cent., 40 1/2
Long Annuities, 8 1/2	Mexican 5 per Cent., 85 1/2
India Stock, 10 1/2 per Cent., 330 1/2	Russian, 5 per Cent., 18 1/2
3 per Cent. Consols for Acc., 84 1/2	Spanish, 5 per Cent., 12 1/2
Eschequer Bills, 1000l. 2 1/2d. & 3d. 47 1/2m	Ditto 3 per Cent., 22 1/2

MINES.—There has been more activity in the mining share market during the past week than we have had for some time past, and a fair proportion of business has been done—indeed, the amount invested may be deemed considerable; and the probability is, that much more will be transacted, from the inquiries made after Devon Great Consols, East Wheal Rose, Wheal Seton, and West Wheal Seton. In the first named mine, several shares have changed hands at an advanced price.

North Roskear two-monthly account meeting was held on the 8th, when a dividend of 2l. 10s. per 140th share was declared, reserving a balance in hand of upwards of 2000l.

Inquiries are being made for Trelawny, Tamara, and Mary Ann, at present prices, and several transactions have taken place. Callingtons have also been in demand—the reports represent the Kellybray lode as looking remarkably well. Carwinning Hill shares have been in request, and several transactions have taken place. We learn, that a gentleman, fully competent, has been deputed to inspect and report on this mine, which we are pleased to hear, as that report will, no doubt, remove that mystery which prejudice or party feeling may have enveloped it—at least, we shall have an opinion divested of all exaggeration, and correct in its details.

The following shares have changed hands this week—viz.: Devon Great Consols, Trelawny, East Wheal Rose, South Wheal Bassett, Carwinning Hill, Mary Ann, Herodasfoot, Cwm Erlin, South Trelawny, Tamar, Callington, Bedford United, Tincroft, &c., &c.

We are advised that the share list of the Camborne Consols Mines is fully completed; and that arrangements are being made for the most energetic operations. The influential direction, the amount of capital for carrying out the undertaking, with the practical ability of the promoters, are powerful means for bringing this highly important adventure into a prominent position among our leading mines.

We observe, that the Liverpool papers attribute the difficulties of Sir Thomas Branker to speculations in mines; which statement, having been copied into some of our metropolitan contemporaries, we think it right to state, after a most diligent inquiry, we cannot learn that Sir Thomas was interested in either copper or lead mines; we have been informed, however, that he is largely interested in an iron establishment, near Swansea; which has been managed for some time past by a Cornish gentleman, who was formerly an agent to a copper company—to which fact we may fairly attribute the misrepresentation.

Our attention has been directed to a pamphlet, just issued, on "Commerce and Free Trade promoted in the Indian Archipelago," in which the writer appears to have a twofold object—unrestricted commercial intercourse with the colonies, and the promotion of the views entertained by the Eastern Archipelago Company—chiefly founding his arguments upon the mineral productions of our Asiatic colonies, as being a grand source for the promotion of commerce. We fully assent to his assertion, that the rapid rise and prosperity of our South Australian colony may be attributed to the mineral wealth discovered there—and hence the deduction, that when that interest is duly appreciated, commercial intercourse, colonial prosperity, and national benefit must necessarily progress. The geographical position, the natural productions, and the immense metalliferous districts possessed by the Eastern Archipelago Company, are fairly represented by the writer; and we believe, if the latter were worked with British mining talent, industry, and perseverance, the superstructure of a great commercial company may be established.

We understand that a gentleman, not unconnected with one of our largest smelting firms, has left England for Australia, with the necessary material for the purpose of establishing smelting-works at Adelaide, or in the locality of the mines.

In foreign shares inquiries for St. John del Reys have continued, and several transactions done. United Mexican, Australian, and Bolanos, have also changed hands.

The following arrivals of specie have taken place since our last—On Sunday, the 14th, by the Peninsular and Oriental Steam Navigation Company's ship, *Montrose*, which arrived at Southampton, with 22 packages of specie, value about 11,000l. The *Arcadia* arrived at Liverpool, on Tuesday, from the United States with specie, to the value of 47,800l. The Peninsular and Oriental Steam Navigation Company's ship, *Pacha*, arrived at Southampton, on Monday night, having on board six packages of specie, and general cargo.

RAILWAYS.—At the commencement of the week, the preparation for the settlement, with only moderate attendance of members, seems to have restricted business in shares, and speculative transactions were very limited. On Wednesday, the market was decidedly firmer, with a steady, though still moderate, business. In some lines there was, however, a decline. A gradual improvement has since taken place; and the market closed with an evident increase of prices, though transactions were not extensive.

The audit of Railway Accounts Bill was thrown out of the House of Commons, on Wednesday evening, by a majority of 100 to 88.

The continuance of fine weather has given great impetus to the progress of those railways now in course of construction. The Oxford, Worcester, and Wolverhampton; Birmingham, Wolverhampton, and Dudley; South Staffordshire, and Stour Valley, are proceeding rapidly, and the Shrewsbury and Birmingham fast drawing to completion. That portion of the Scottish Central, between Perth and Sterling (33 miles) was opened on Tuesday by a trial trip, which performed the distance in 1 h. 20 min.; the appearance of the line gave complete satisfaction.

The Midland Great Western Railway of Ireland, and Royal Canal Company (open for traffic 36 miles): Revenue for the week ending the 14th of May, for goods and passengers, exclusive of mails, 1243l. 12s.; number of men daily employed in continuation of the railway, 1860, and 180 horses.

HULL, THURSDAY.—It seems almost impossible for the share market to maintain any improved aspect; and, in the present state of things, were it not for the fine weather, prices would almost be entirely ruled by political events and their action on Consols. Prices are lower generally than when we wrote last week. Ambergates remain firm, owing to the judicious intention of abandoning about two-thirds of the scheme. In local stocks no alteration.—P.S. Since the above, the telegraphic despatch brings a better market from London, both for Consols and shares.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. lwy.	Present actual cost.	Price per share	Last Div.	Traffic Returns.	
					1848	1847
Birkenhead, Lancashire, & Chesh. Lancashire	15 130 1/2	997,284 3,594,470	37 32 1/2	5 p. c.	£ 829 3821	812
Dublin and Drogheda	35	754,529	52	—	768	876
Dublin and Kingstown	7 1/2	473,282	—	6	1220	868
Dundee, Perth, & Aberdeen Junc.	47	415,078	28	8	826	363
East Anglian (Lynn to Ely)	55 1/2	1,062,742	6 1/2	—	522	—
East Lancashire	28	1,733,915	19	—	1006	663
Eastern Counties and Norfolk	295	9,833,859	15	4	15013	12914
Eastern Union	51 1/2	979,296	20	—	1121	952
Edinburgh and Glasgow	53	2,481,767	45	—	3411	3498
Edinburgh and Northern	29	1,392,092	14 1/2	4*	1256	—
Glasgow, Paisley, and Ayr	64 1/2	2,097,321	70	6	2104	2408
Glasgow, Paisley, & Greenock	23	845,354	16	4	1063	1164
Gr. Southern & Western, Ireland	110 1/2	1,876,226	23 1/2	4*	2450	1559
Great Western	281 1/2	10,970,636	95	7	21601	19801
Kendal and Windermere	10 1/2	169,888	23	—	157	—
Lancaster and Carlisle	70	1,395,193	49 1/2	4	1864	1178
Lancashire and Yorkshire	136 1/2	7,591,618	86	7	9720	8341
London and North Western	428	21,513,354	133 1/2	8	41987	42129
London and Blackwall	4	1,241,061	5	1 1/2	1106	967
London, Brighton, & South Coast	161 1/2	6,087,822	33 1/2	4	2985	6764
London and South-Western	189	6,264,164	49 1/2	8	5234	7928
London and Tottenham	14 1/2	145,135	16	—	108	161
Manchester, Sheffield, & Lincolnsh.	49 1/2	2,366,624	80	5	2124	1995
Marquary and Carlisle	28	440,851	40	—	510	607
Midland Company	422 1/2	9,883,122	105 1/2	7	20378	19844
Midland Great Western (Irish)	38 1/2	725,332	10 1/2	4*	1244	—
Newcastle and Carlisle	66 1/2	1,407,375	105	6	3282	2191
North British	81	2,800,748	22 1/2	5	5018	1707
Shrewsbury and Chester	17	780,273	13 1/2	—	616	478
South Devon	29	1,609,071	20	—	1535	623
South-Eastern	165 1/2	6,932,181	24 1/2	6 1/2	8689	8150
Taff Vale	38	820,056	—	5 1/2	1762	1472
Ulster	36	684,684	82	4 1/2	881	974
Whitehaven Junction	12	147,095	32 1/2	—	189	199
York, Newcastle, & Berwick	242 1/2	4,466,526	32 1/2	5	11135	8748
York and North Midland	230 1/2	3,799,297	72	10	8370	6050

FOREIGN RAILWAYS

Amiens and Boulogne	75 1/2	873,338	6 1/2	4	1276	—
Antwerp to Ghent (monthly)	31	—	—	—	—	—
Marcelle to Avignon	71 1/2	—	8 1/2	—	—	—
Dutch Rhenish	211	—	—	—	1065	1166
Northern of France	211	2,000,000	4	4	9016	10681
Orleans to Bourges (Central)	107 1/2	—	—	—	—	—
Orleans to Tours	72	600,000	32 1/2	4	2333	3204
Paris and Orleans	82	2,011,720	22	12 1/2	—	7904
Paris and Breton	85	2,082,916	15	11 1/2	2618	3426
Rouen and Havre	59 1/2	—	8	3 1/2	1280	2637
Strasbourg and Basle (monthly)	88	—	—	—	—	6168
West Flanders	—	—	—	—	988	—

* Interest.—Total for last week, £156,983, being an increase of £30,306 over last year.

IRON IN NOVA SCOTIA—HALIFAX AND QUEBEC RAILWAY.

We have been requested to publish the following correspondence, which has recently taken place between the projector of the Londonderry Mining Company of Nova Scotia and her Majesty's Government:—

149, Aldersgate-street, May 13, 1848.
MY LORD.—I have the honour to submit, for your lordship's perusal, a prospectus, published with a view to raise capital in England to work a mine of iron ore, of unusual purity and of incalculable extent, situated 70 miles from Halifax, Nova Scotia, on the route found to be the most eligible, between Halifax and Quebec, for the proposed railway, recently surveyed by order of her Majesty's Government. The mine will produce steel equal to the best quality, now solely obtained from the Swedish ores, which no other mine yet discovered in her Majesty's dominions, in Europe or America, can produce. This is an object of national advantage. It would greatly facilitate this enterprise were I able to state, on the authority of your lordship, that it is the intention of her Majesty's Government to encourage, by grant or otherwise, the construction of the Halifax and Quebec Railway, as the iron required for that undertaking can be manufactured at the mine in Nova Scotia at a price not exceeding the cost of English iron, while the quality of the article would be far superior. I enclose copies of two addresses, which I had the honour to have presented to me previous to my departure from Nova Scotia, which will enable your lordship to judge of the importance attached to the success of my mission by the loyal inhabitants of Nova Scotia; and doubt not that it is your lordship's desire that their laudable endeavours, aided by English capital, to develop the natural resources of Nova Scotia—hitherto so much neglected—should receive the encouragement of the Imperial Government. I have the honour to be, my Lord, &c.,
 The Right Hon. Earl Grey, her Majesty's Colonial Secretary, &c.

Donning-street, May 13, 1848.
SIR,—I am directed by Earl Grey to acknowledge your letter of the 5th inst., enclosing a prospectus of a mining company, which has been recently formed, for the purpose of working a mine of iron ore in Nova Scotia. I am to express Lord Grey's thanks for this prospectus, and to state that his lordship must decline giving any opinion at present as to the degree of encouragement, if any, which her Majesty's Government may think it expedient to give to the proposed Halifax and Quebec Railway.
 I am, Sir, your obedient servant,
 J. Ross, Esq. BENJAMIN HAWES.

THE ASPHALT OF SEYSSSEL COMPANY—CLARIDGE'S PATENT.—In our last Number, we briefly noticed that the annual general meeting of this company was held at the offices, Stangate, Westminster, on Thursday, the 4th inst., when a dividend of 7 1/2 per cent. was declared. We should also have stated, that this material has so advanced in public estimation, and the success of the company so completely established from the large and continued increase of works executed by them, that, in addition to the above dividend, an amount, equal to 2 1/2 per cent., was reserved as an augmentation of the working capital. The adoption of the report and accounts, and a vote of thanks to the directors and secretary for their exertions, were carried unanimously.

JOINT-STOCK COMPANIES' BILL.—This Bill, as it was amended in committee and on recommission, has been once more printed. With the view of further facilitating them, the Government had at first proposed the winding up of the affairs of the joint-stock companies unable to meet their engagements. Three clauses have been added. The first enacts that, when a company transacts business, both in England and Scotland, it may be wound up in England; the second states, that the Act shall not apply to Scotland; and the third directs, that all contributors who may be lunatics or idiots shall be represented by their committee, and minors by their guardians.

THE HOLYHEAD STEAM-PACKETS.—The principal trial of the new Holyhead steam-packet *Llewellyn*, master, Commander Grey—vessel and engines designed and manufactured by Miller, Ravenhill, and Co., of Blackwall—took place on Monday last. A large party of the friends of the firm, officers of the Royal navy and the Admiralty establishments, officers of the Russian navy, and eminent scientific men of the Government and private establishments, were on board, and, to the admiration of every one, the performances of the vessel were characteristic of the eminent firm of Miller, Ravenhill, and Co. We have not space for details, but we may state that, under adverse circumstances, she made four runs at the measured mile, at Long Reach, which gave her an average rate of speed of 15.415 nautical miles, or nearly 17 1/2 statute miles an hour, never making more than 27 revolutions per minute. She then ran to the Nore light, passing the distance from the town pier at Gravesend, in one hour and fifteen seconds; and then ran from the Nore light to the Mouse light and back twice, during which time her greatest speed was 20.15 statute miles per hour, and her lowest rate at 15.845. The latter, however, in consequence of the throttle-valve being open, was held to be a bad trial, and she was accordingly tried up and down again the 7.65 knots distance. When working at 28 and 29 revolutions per minute, she made the same run down in 27 minutes 22 seconds, or at the rate of 16.798 knots; and the return trip in 30 1/2 minutes, or at the rate of 15.049 knots. Taking the average of the two last runs, the speed of the *Llewellyn* was nearly 16 nautical miles an hour, or 18 1/2 statute miles per hour. It is admitted, without question, on all hands, that the *Banasher*, of wood, by Mr. O. Lang, jun., engines by Penn, and the *Llewellyn*, of iron, designed by Pasco, engines and vessel of iron, by Miller, Ravenhill, and Co., are vastly superior to their competitors, built expressly for the Holyhead packet service.

IMPORTANT DECISION AS TO THE POWER OF A MASTER TO DISCHARGE A WORKMAN WITHOUT NOTICE.—Considerable interest was excited at Bedlington on Friday week, in consequence of three summonses having been taken out against Messrs. Longridge, the owners of the extensive iron-works, by parties who had been discharged by them without notice, and who claimed, on that account, to be entitled to three weeks' wages each. Mr. Lucas Cotton, of Newcastle, appeared for the claimants, and Mr. Howland, of Newcastle, for Messrs. Longridge. It appeared, from the evidence adduced on the part of the workmen, that they had for some time been employed at the works, at the rate of 25s. per week, and that about three weeks previously they were summarily discharged, without notice. They had since tendered their services, but were not allowed to go to work. It also appeared, that the masters had posted a notice at the works, requiring that every servant should give three weeks' notice before leaving his employment. The bench decided, that this raised an implied undertaking on the part of the employers to give a similar notice. The men each distinctly swore, that when they were discharged no complaint was made by their masters of their having neglected their work, but that they were told by Mr. Longridge that it was in consequence of their having attempted to induce the workmen to join in a strike to raise the wages. The defence set up by the Messrs. Longridge to the claims made was, that the men who had been discharged were in the habit of leaving their work to go to speak to other workmen during the hours of business. The overlookers on the premises were called, who proved that they had seen each of the men do so on several occasions, and that the men had been spoken to once or twice upon the subject. The bench were divided in opinion as to their judgment under the circumstances, but the majority eventually decided that in two of the cases the men had been proved to have been seen leaving their work to go to speak to other men, contrary to the rules of the works, and that this was a sufficient ground to justify Messrs. Longridge in discharging them without notice; and in these cases they dismissed the summonses. In the other case, they considered that no sufficient justification had been proved, and they made an order for the payment of 3l. 10s. the amount claimed.—*Newcastle Advertiser.*

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of April is 27—the quantity of coals consumed being 2668 tons, lifting, in the aggregate, 25,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 53,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal.—The following have exceeded the average:—

Mines.	Engines.	Length of stroke in feet.	Load in pounds.	Load per sq. inch, on pist.	Strokes per min.	Consumption of coal in bushels per min.	Million lbs. lifted 1 foot by consump. of 1 bush. coal.	Average quantity of water per min.
Great Work.	Leeds's 60-in.	9.0	47,020	12.9	10.0	3340	57.1	238
East W. Croft.	Trevenson's 90-in.	10.33	85,273	12.6	4.6	2060	59.4	250
Carn Brea.	— 76-in.	9.0	81,548	13.9	4.8	1980	57.0	—
Ditto	Sims's 50 & 80 in.	9.0	57,392	22.8	3.7	1677	55.9	559
Andrew and Nangles	— 7-in.	10.0	50,527	10.4	4.7	1440	53.8	286
United Mines	Taylor's 85-in.	11.0	97,108	15.5	6.0	2966	87.7	—
Ditto	Cardona's 90-in.	9.0	99,468	13.7	8.4	4730	36.7	—
Ditto	Edon's 30-in.	9.0	13,631	16.0	8.0	486	68.5	2197
Ditto	Leon's 85-in.	10.0	89,320	11.8	9.4	4720	64.2	—
Ditto	Hocking's 85-in.	10.0	99,093	14.6	8.4	4896	57.9	—
Per. St. Geo.	Sims's 60 & 100 in.	9.0	90,279	28.2	8.0	3771	62.4	1408
East Wh. Rose	Penrose's 70-in.	10.0	57,610	13.4	4.3	1338	67.1	—
Ditto	Michell's 70-in.	10.0	62,087	14.5	4.9	1844	69.3	677
Wh. Mary Con.	— 68-in.	8.66	29,197	9.3	6.3	1170	54.8	266

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—West Hartley 14—Carr's Hartley 14—Davison's West Hartley 14—Dean's Hartley 14—Hastings's Hartley 14—Holwell Main 14—Leavingthorne Hartley 14—North Percy Hartley 14—Ord's Redheugh 13—Tanfield Moor 13—Wylam 13—West Wylam 13—West Hartley 14—Walls' End Bell and Brown 13—Brown's Gas 12 1/2—Gosforth 13—Hedley 13—Hotspur 13—Horton 13—Hilda 13—Killingworth 13 1/2—Northumberland 13—Riddell's 13—Washington 13—Eden Main 14 1/2—Lambton's Primrose 13—Belmont 14—Braddyl's Hutton 14—Bell 14 1/2—East Hutton 13—Haswell 13—Hutton 13—Lambton 14—Leavingthorne 13—Russell's Hutton 14—Shotton 14—Stewart's 13—Hudson's Hartlepool 14—Heugh Hall 13 1/2—Kellie 14—Adelaide 14—Seymour's Tees 14—South Durham 13—Derwentwater Hartley 14—Sildrey's Hartley 14—Ships at market, 107; sold, 145.

WEDNESDAY.—Carr's Hartley 14—Davison's West Hartley 14—Hastings's Hartley 14—Holwell Main 14—Richardson's Hartley 13 1/2—Tanfield Moor 13—Wylam 13—West Wylam 13—West Hartley 14—Walls' End Bell and Brown 13—Brown's Gas 12 1/2—Gosforth 13—Hedley 13—Hotspur 13—Horton 13—Hilda 13—Killingworth 13 1/2—Northumberland 13—Riddell's 13—Washington 13—Eden Main 14 1/2—Lambton's Primrose 13—Belmont 14—Braddyl's Hutton 14—Bell 14 1/2—East Hutton 13—Haswell 13—Hutton 13—Lambton 14—Leavingthorne 13—Russell's Hutton 14—Shotton 14—Stewart's Hartlepool 14—Adelaide 14—Seymour's Tees 14—South Durham 13—Derwentwater Hartley 14—Sildrey's Hartley 14—Ships at market, 78; sold, 40.

FRIDAY.—Bate's West Hartley 14—Carr's Hartley 14—Chester Main 13—Davison's West Hartley 14—Holwell Main 14—New Tanfield 12 1/2—North Percy Hartley 14—Richardson's Hartley 13—Havensworth's Pelaw 12 1/2—Tanfield Moor 13—Towmley 13—Wylam 13—West Wylam 13—West Hartley 14—Walls' End Bell and Brown 13—Brown's Gas 12 1/2—Gosforth 13—Hedley 13—Hotspur 13—Horton 13—Hilda 13—Killingworth 13 1/2—Northumberland 13—Riddell's 13—Washington 13—Eden Main 14 1/2—Lambton's Primrose 13—Belmont 14—Braddyl's Hutton 14—Bell 14 1/2—East Hutton 13—Haswell 13—Hutton 13—Lambton 14—Leavingthorne 13—Russell's Hutton 14—Shotton 14—Stewart's Hartlepool 14—Adelaide 14—Seymour's Tees 14—South Durham 13—Derwentwater Hartley 14—Sildrey's Hartley 14—Ships at market, 147; sold, 100.

and loss of life, when 35 persons were killed at once, and measures were then taken which restored confidence in the safety of the pits. But these measures could not have been effectual, or, if they were, then the too usual negligence of the colliers (who go about their work in general, with an unpardonable and criminal indifference to the imminent dangers they run the risk of encountering), must again have been exhibited by them, to their own imminent risk; and, in this case, the death of their comrades. The particulars of the explosion are briefly these:—On Tuesday morning, when the miners were proceeding to their work, one of them, named J. Thomas, on going into the pit, was observed to be carrying his safety-lamp without its cover. He was immediately apprised of what might be the consequences, but making an observation that "he had worked there 30 years without danger, and there was no danger now," he went down, followed by seven or eight others. He had scarcely got into the pit before he lifted up his candle from the lamp and placed it in the clay in front of his hat, by which elevation it came in immediate contact with the fire-damp in the upper portion of the vacuum where he worked, and a frightful explosion at once took place, killing the poor fellow on the spot, and one boy, besides so seriously injuring two others that their lives are despaired of; while three others received serious injuries, and one horse was killed. The bodies could not be extricated for some hours afterwards; and in getting them out the fire-damp was so great that one man was almost suffocated by it, being in fact brought out for dead. He is in a dangerous condition. The bodies were frightful to look upon, being completely scorched up and disfigured. An inquest will be held this morning on the bodies, and the public expect that more than an ordinary investigation will be instituted into this sad transaction.

Coal-Pit Accident at Clay-Cross.—On Monday last, a fatal accident occurred in one of the Windfield pits belonging to the Clay-Cross Company. Two brothers, B. and M. Hatton, on their arrival at the stall where they got coal with lighted candles, the coal pit exploded, and shortly after Benjamin was found much burnt, and his head cut, so as to render him insensible; Nehemia, after some time was found not so badly burnt as his brother, but quite dead—having, it is supposed, been suffocated with the after-damp. On examining the cause of the explosion it was found that a part of the roof had fallen in, and stopped the current of air which ventilates the pit, after the men had left work on Saturday; and, in consequence, a quantity of foul air had collected.—*Derby Reporter.*

Highfield, Wolverhampton.—On Saturday last, as T. Jones, aged eight years, was flying a kite near some old coal pits, formerly worked by Messrs. Tarrant and Timmins, he walked backwards into one of them, and was killed.

Sedgley, Wolverhampton.—On Wednesday week, A. Millward was killed by a fall of coal, in a pit belonging to Mr. H. Whitehouse.

COLOMBIAN MINING ASSOCIATION.

A special general meeting of shareholders was held at the offices, Austin-friars, on Monday last, the 15th inst.

J. D. POWLES, Esq., in the chair.
 Mr. JONES (the secretary) having read the notice convening the meeting—the CHAIRMAN (said the present meeting was called merely to confirm a resolution passed at the special meeting, held on the 6th of April, which he read to the meeting, authorising the directors to take such steps as they might think proper for realising the assets with the least possible delay, and to wind up the affairs of the company

LEAD AND SILVER MINES IN THE COUNTIES OF

NORTHUMBRLAND AND DURHAM.—TO BE SOLD, BY PRIVATE CONTRACT, all those valuable and current-going LEAD and SILVER MINES, belonging to the Bulbeck Lead Company, called SILVER TONGUE, in the county of Northumberland, and Hysop, in the county of Durham, with the ENGINES, for pumping and for washing the ores, OFFICES, COTTAGES, MINE SHOPS, MATERIALS, and UTENSILS belonging to the same, situated upon the River Derwent, in the immediate vicinity of Shotley-bridge, about 16 miles from Newcastle-upon-Tyne, and near the Wear Valley Railway.—Those mines are divided from each other by the River Derwent, which here forms the boundary between the counties of Northumberland and Durham, but are connected by levels of communication for the convenience of unwatering the workings, and of washing the produce at central washing floors.

The Silver Tongue Mines are held by lease from the lord of the manor of Bulbeck, and the Hysop Mines from the Doan and Chapter of Durham. The royalty dues payable for the former are highly favourable, and for the latter are moderate. The leases are renewable according to custom. The engines for unwatering the mines, and for crushing and washing the ores, are driven by water, and in the best order and efficiency. The right of working extends over a tract of mining ground, through which many veins of lead are known to run. Four only have been partially worked, and yield large quantities of ore, rich in silver, and are converging towards a point of intersection with other veins, where a considerable accumulation of ore is expected. From the known productiveness of the lower strata in the very ancient River Derwent Lead Mines, there can be no doubt but they will here be equally productive.

The Castle Side Smelting Mill, with machinery, horizontal chimneys, and every convenience for smelting and refining the ores from this and other mines, is situated in the immediate vicinity.

Mr. William Wilson, the agent on the premises, will show the mines, and further particulars may be known and plans seen, by applying to John Dolphin, Hunter House, Kidding Mill.

TO IRON MAKERS, FOUNDRERS, IN WALES AND STAFFORDSHIRE.—WANTED, 50-feet CYLINDERS, for a well, in 10 lengths of 5 feet depth and 4 feet diameter, and in four segments. To be put together by bolts, to be screwed inside, to be three-quarters of an inch thick, and to fit properly, so as to exclude the water when put together. To be delivered in a wharf in London, free from expense. Terms, cash on delivery.—Estimates for cast-iron per ton, and bolts per cwt., to be addressed to Robert More, Scottish Brewery, Old-street, St. Luke's.

NOTICES TO CORRESPONDENTS.

It will at all times excite much trouble, and frequently considerable delay, if communications are simply directed—
To THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

Also, to avoid trouble, POST-OFFICE ORDERS should always be made payable to WILLIAM SALMON MANSELL, as acting for the proprietors.

WEST WHEAL JEWEL MINING ASSOCIATION.—Should not "An Unfortunate Jeweller" (Sidmouth) have attended the meeting? Surely one so well acquainted with the affairs of the company, and apparently so well qualified to put proper questions, would have succeeded in eliciting all the information he required from the directors or secretary, whose duty it is to give all such explanation. The letter being anonymous, and unaccompanied by the author's name, is precluded insertion; but if the writer be a shareholder, and interested in the company's prosperity, he cannot hesitate in addressing us *in propria persona*, when his communication shall receive every attention.

The continuation of Mr. Dunn's paper on "Winning and Working Collieries," is necessarily postponed.

We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses; not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

. We should feel obliged to all pursers, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal with as little delay as possible.

Now ready, price 2s.,
A Glossary of Mining and Smelting Terms,
USED IN ENGLISH AND FOREIGN MINING DISTRICTS.
Published at the office of the *Mining Journal*, 26, Fleet-street, London; and may be had of John Weale, 59, High Holborn; and through all booksellers in town and country.

ERRATUM.—RAILWAYS IN SCOTLAND.—In our Journal of last week, for expenditure of £5,000*l.*, on the Aberdeen line, read £50,000*l.*

THE MINING JOURNAL
Railway and Commercial Gazette.
LONDON, MAY 20, 1848.

In the MINING JOURNAL of last week, we introduced some remarks on the question of the reduction of the duty on foreign copper ores; and, as the question is still under the consideration of Parliament, and the second reading of the bill fixed for Monday evening next—although there is little doubt of a satisfactory result—every passing circumstance bearing on the subject is of interest, and gives room for discussion and inquiry. We should wish not for a moment to appear to be creating fancied mountains out of every molehill which appears in our path, as supporters and props to a falling cause; that which we have thought it our duty to uphold on the subject of the tax on foreign copper ores is founded on too secure a basis to require any such factitious aid; but, as one fact bearing on the question is worth a hundred theoretical calculations, it is of some importance that each should be recorded.

There is now lying in the river, where she arrived in the middle of the week from Rouen, a vessel named the *Sally*, having on board 6166 cakes and ingots of copper—a circumstance unprecedented in the copper trade; and we much regret, that up to the time of writing, we have not been able to learn the exact particulars as to the locality from which this cargo was received. If smelted in France, Belgium, or Holland, it but agrees with the numerous statements as to the diminished number of our furnaces at Swansea, and their increase on the continent. Or if it be the produce of Chili, or any other foreign state, or even British copper re-exported from France, there is some reason for so unusual a course, attributable to something more than the unsettled state of Europe.

In looking at the Parliamentary annual returns of the exports and imports of metals, no similar import is to be found, and but little variation has taken place for years in the trifling amount of foreign copper received here, either manufactured, or otherwise—indeed, it has in no year been worthy of notice: while for the year, ending Jan. 5, 1847, there is only 566*l.* worth of foreign copper ex-

These circumstances render the occurrence of considerable interest, and we may return to the subject on obtaining further particulars.

read, which was ordered to be printed by the House of Commons, on Wednesday, the 10th inst.:—

1. Whereas it is expedient to reduce the duty now payable upon the importation of copper and lead into the United Kingdom ; be it therefore enacted, that from and after the passing of this Act, in lieu of the duties now payable upon the articles mentioned in the table annexed, there shall be levied only the several duties of customs respectively ascribed in the said table.

2. All such goods as are enumerated in the said table as shall have been warehoused without payment of duty upon the first importation thereof, and which shall be in the warehouse at the commencement of the duties imposed by this Act, shall be deemed and taken to be liable to such duties.

3. The duties by this Act imposed shall be under the management of the commissioners of Her Majesty's Customs, and shall be ascertained, raised, levied, collected, paid, recovered, and applied, or appropriated, under the provisions of any act or acts now in force or hereafter to be made relating to the customs.

4. This Act may be amended or repealed by any act to be passed in the present session of Parliament.

TABLE REFERRED TO

	s.	d.
Copper, ore, of, per ton	0	0
" regulus, of, per ton	1	0
" old, fit only to be manufactured, per ton	2	6
" unwrought—viz., in bricks or pigs, rose copper, and all cast copper, per ton ..	2	6
" cast wrought—viz., bars, rods, or ingots, hammered or raised, per ton	2	6
" in plates and copper, cold, per ton	2	6
Lead, and, pig and sheet, per ton	2	6

We ought not to omit mentioning, that Mr. WYLL, M.P. for Bod-in, has given notice, that on the second reading being proposed, he shall move "that it be read a second time this day six months."

The **COST-BOOK SYSTEM** is a subject which has been so oft treated

on in our columns, that it might be supposed little more could be
vanced in its favour, or arguments used, touching on its merits and
vantages. In again adverting to it, our object is rather to confine
rselves to the non-observance of the system laid down, and the
jury sustained by the community from the false position taken by

many of the lately-formed mining companies. It is to recapitulate those several points which must be familiar to the majority of our readers. It has become, we may say, the rule for us head-

At the same time, we must say, the fact that we usually

know an exception, with all mining adventurers boldly to set out in the prospectus, "carried on under the Cost-book System," while several of the conditions laid down for the government of the company are directly opposed to the principles on which that system is based. In an article, which appeared in the Journal of the 1st of April, we there cited a series of rules, which we found to convey the main features where the system is observed, among which the most prominent may be said to be that of holding periodical meetings—say, once in every two months—when the accounts and vouchers are presented, and passed, by the body of adventurers—when calls are made, or dividends declared—and when it is understood that the accounts are made up, clearly showing the assets and liabilities, so that the risk is confined to two months' expenditure—such an adventurer having the power of seceding, on giving notice to the pursuer of such being his intention, and paying his proportionate cost, or receiving his share of the assets. But with 9-10ths, or, we might say, 19-20ths, of the companies formed, this course is not adopted, but the adventure is carried on, with but a slight, and, in some instances, no exception from the scrip system, which holds out so many temptations to dishonest dealing—at the same time that the object of the Legislature, in excepting, by the 64th clause of the Joint-Stock Companies' Registration Act, mining transactions in the purchase, sale, or transfer of shares, from any stamp duties, in cases where mines are carried on under the Cost-book System, is frustrated; the security which that affords the adventurer not being attained, but an imposition practised under assumed legal protection. It is also an injustice to the nation at large, to except mining transactions from the stamp duty, while it is imposed on all railway transfers, without, in the former case, the rule be strictly observed, of working the mine on the Cost-book System, and which should be the office of the Stannary Court to see is the case, or the penalties under the Act, to which we have referred, should be inflicted. Another question arises with us, which is—how far the Cost-book System can be adopted in Scotland, Ireland, or Wales, where no Stannary Courts exist, and where, we may add, the system, in itself, was comparatively unknown and unpractised, until the Joint-Stock Companies' Registration Act became law—when, forsooth, every mine was held to be worked on the principle observed in Cornwall, however ignorant the parties might be of the nature of the system, or how little attention they may have paid to its observance in practice. Indeed, we have no hesitation in saying that, with the exception of mines, the management of which is principally confided to Cornish adventurers, or agents, there are but few which have even the semblance of observing the first rules which apply to the "Cost-book" Principle.

It is solely with the view of directing the attention of the adventurers at large, that we are induced to enter upon the subject. That the system, if observed, is one the most secure, as applied to the employment of capital by a body of persons, affording protection from loss, and a power being given to avoid further liability, or cost—receiving their fair proportion of the value of the ore raised, the machinery, and balance of cash in hand, at any time when the adventurer may be desirous of retiring—there cannot be the slightest doubt; but it may be used as a cloak for abuses, if that the rules be not strictly observed. Such we know to have been the case, and is now daily practised by parties—involving the mine in debt, taking the financial matters in their own hands, which legally should be vested alone in the body of adventurers, and who, as a self-elected committee, govern the concern, hold their meetings, make calls, and forfeit shares at their will and pleasure. That some change should take place, we consider indispensable, for the security of the mine adventurer; and this, we trust, will be the expressed opinion of those most interested are long.

While on the subject, we would again recommend most strongly to adventurers in no case to execute blank transfers. By so doing, they lend themselves to a deceptive course, pursued by many, which we have described in a former Number. Let them have the transfer filled up; let it be transmitted to the pursuer, and his acknowledgment received, before even the consideration-money changes hands. There are many reasons for this being done. In the first instance, the purchaser should be satisfied that the party disposing of the shares is a bona fide holder, and that the shares have been regularly transferred into his (the purchaser's) name, which in itself would imply that all calls had been duly paid thereon—while, on the other hand, the seller would be satisfied that he was released from all future responsibility by the shares having been regularly transferred in the cost-book. We have known several instances where shares have been assigned—that is, on the transfer paper—to which the party selling had no claim; and, in other cases, where the party purchasing the shares had never registered them, and, consequently, the seller was held responsible for all calls subsequently made. It is sufficient for our purpose to note these circumstances—at the same time, that the parties being thus made known to each other, at least by name, is one not the least worthy of consideration. The agent, or broker, takes his commission on the transaction, and with that he should be content. Such, however, is not all times the case. We do not wish to reflect upon any one individual; but we know such things are done. Every honest broker will accord with us in the opinion we have expressed, and the recommendations given, as tending to encourage legitimate mining enterprise—while, we repeat, it is the duty of shareholders generally to see that rules laid down, or professedly so, be strictly observed.

In our columns of the 6th instant, appeared a letter from a correspondent, animadverting on the proceedings of the Sardinian Government, with relation to the Piedmontese Railway, from which we, in common with our readers, would naturally be led to conclude that there was with the authorities a want of honesty in their dealings. It is hardly necessary for us to say, that our columns are at all times open, whether to afford information of the progress and the successful results attendant on mining, railway, or other adventures, or to note the observations of those who may consider there is cause for complaint, or would suggest remedial measures. Such is the course we have uniformly pursued, and hence our present remarks. The letter of our correspondent, to which we have made reference, conveys an expression which is calculated to militate against the Government, by implying that no dependence can be placed on it; and while we are ready to admit that, in times like the present, folks should be cautious and chary as to the nature of their operations, and the trust they repose in others, more especially our continental neighbours, whether Governments or individuals, yet we should much regret if that any observation which might fall from us, or the insertion of any communication, should have the effect of prejudicing a nation by alarming our manufacturers at home. That caution is necessary, and that such is observed, so far as is practicable, by the English merchant, no doubt can exist; nor is it necessary for any remark on our part to engender such caution—while we feel it due to the character of the Journal to state, distinctly, that no consideration could induce us to prejudice a foreign state, much as we love home. Having thus premised the brief observations we would offer on the subject at issue—that of the rectitude of conduct on the part of the Sardinian Government, and the dependence that may be placed on it, with reference to any contracts, or engagements—we are bound to say that, after having instituted inquiries, which we felt to be our duty, so as to ascertain the correctness of our correspondent's remarks, or rather the innuendoes conveyed in his communication, or otherwise, we feel much pleasure in stating, upon the authority of one of the first firms in the iron trade, that every transaction with which they are cognizant, and these are not a few, in which they have been individually interested with the Sardinian Government, honesty and probity

have been strictly observed. It is to be remarked, that the state of the continent at the present moment, as compared with some three or four months back, is widely different; and it might be, and doubtless is, injudicious to trust the foreigner without a satisfactory assurance of the contract being duly performed on both sides—not only the supply of the material, but the remittance of the cash; and hence we consider that caution cannot be too strictly observed. It is, we believe, a matter of fact, that in one or two trifling contracts entered into indirectly with the Sardinian Government, they have endeavoured to avail themselves of adventitious circumstances as applying to them, arising from the failures of the contractors, agents, or middle-men; and we can hardly say, that the Government are to blame to the extent which some folks would wish us to suppose, inasmuch that, not being the contracting party, they are not responsible—and hence the desire on their part to make the best bargain. We confess we should like to see a greater degree of liberality manifested; and that, because these agents, or middle-men, had failed, the Government actually requiring the material, they would not swerve from the agreement, or bargain, originally entered into. However, this may be considered as a feather in the scale, compared with a wholesale practice, such as our Turin correspondent would lead us to suppose was practised.

From the information we have acquired, it would appear, that a commission from the Sardinian Government, composed of Cn. SIGISMUNDO, MICHELIONI, and SOMMERELLO, have been in this country for the past two or three months—having for their object, the contract for locomotives, &c.—but it is hardly necessary to say, that the peculiar position of foreign states, and our relations therewith at the present moment, and for some little time past, preclude any negotiation, or contracts, on a satisfactory basis, as perfect confidence cannot be supposed to exist—and where such is the case, even if business could be done, higher terms would be exacted, to which we can well understand, the commissioners could not submit.

In conclusion, we have only to add, that the assurance given us, by firms, with which the Sardinian Government have had many transactions, is such as to cause us to express our regret, that the letter of our Turin correspondent should have been inserted; if, however, it should appear that the information we have acquired during the past week be wrong, it will afford us much satisfaction to be set right in our next Number; for, as before observed, we have only one object in view—that of acquiring and rendering information to our readers, without regard to the interests of any individual, but with the object of being useful to "one and all."

The importance—may, the absolute necessity—for a sweeping reform in our Patent Laws, has now become almost universally admitted, if inventors and patentees are to be protected by those laws, and if England is to uphold her character as the pioneer of civilisation—one which has occasioned her to be held up to the admiration and envy of surrounding nations. We possess a code of laws under which the jurisprudence of the land professes to secure to every inventor, taking out a patent, such an immunity of manufacture and sale, as shall reimburse him for his time, suspense, and cost; yet, in perhaps a majority of cases, more particularly those of the greatest importance, a party is subjected, during the few years granted him for exclusive sale, to the piracy of the unprincipled; and, at the expiration of such period, finds himself not only minus the 300*l.* or 400*l.* (the expense of the patent in the first instance), but probably saddled with heavy law costs, and harassed, irritated, and well nigh distracted, at the destruction of the cherished expectations of years, and the overthrow of his proudest, fondest hopes. The mode of granting patents, under the existing laws, by which the whole is under the control of the Court of Chancery (a court which, as at present conducted, is a national evil), is highly objectionable; for, by this system, not only has this Court the granting of a patent, but, in case of dispute, afterwards actually sits in judgment on its own acts; and the greatest anomaly is, that a patent is granted one day—a party paying a large sum of money for the supposed privileges obtained—and, on a future day, a decree goes forth from this legal Golgotha, declaring it to be *no patent at all*. In such a case, the unfortunate inventor is not only minus the amount paid as fees, to obtain a secure right in the sale of his invention, but also the legal costs of attempting to punish an infringement of a presumed privilege, granted by the Court of Chancery itself. It does appear to us, that a great and substantial change should be made in these matters—that the present sinecures, two and three deep in the Patent Office, Roll's Office, and Petty Bag Office, be abolished—that the three be consolidated in one office, presided over by a properly-constructed board of scientific men, with a legal functionary of their own choosing, to put them correct in points of law—that the system of registration be so simplified and classed, that there would be small chance of any inventor, with the aid of an agent, unwittingly patenting a plan which had been secured perhaps years before—and last, though not least, that a system of fees be established, which, while they would handsomely remunerate the officials, should fall with less severity on the pecuniary resources of inventive genius. The plan followed in some of the continental states might be adopted with much advantage—spreading the costs of a patent over a term of years, and allowing a patentee to discontinue payment, if he felt disposed to throw up his patent. A variety of minor details would, of course, suggest themselves—some of which will be found in Mr. CAMPBELL'S proposed petition, published in the MINING JOURNAL of the 8th April. We do trust that the Legislature will take the matter up in earnest—for not only are the existing laws most seriously injurious to the progress of science, but, in their present form, are an absolute disgrace to us as a scientific and commercial nation.

The new Member for Lambeth, who came in at the last general election as a representative of the labouring classes, has very consistently commenced his Parliamentary career by *vetoing*, as loudly as he could, a measure largely designed for the comfort and improvement of those very branches of the active public of which he is the quasi-representative. A large and beneficent measure for the labouring man was submitted to the House of Commons, and this popular advocate did the most in his power to trample the life out of it—that is our charge against him: he justifies his opposition to the Health of Towns Bill, on the ground—first, that it aims too largely at centralisation; and, secondly, that the unwholesomeness and immorality presumed in that bill are nowhere to be found. He proves this, as he thinks, by pointing to the clauses, fixing the administrative powers of the bill to a board of gentlemen sitting in London; and by quoting a number of returns, showing that the filth of England is not greater than the filth of the continent; nor the amount of profligacy, or the number of illegitimate children, more than in any similarly large population. We might grant him the whole of this, and yet have fifty logical reasons for shutting his mouth, with respect to the bill he has been criticising. If the town and rural population of England are no worse off than the population of other countries, is there, therefore, no reason for our attempting to make them the better off of the two; or, does he think, that taking the poor-houses of England as a whole, they do not present too great a sum of crowding and uncleanness—nor are the instances of bastardy throughout these districts at all too many, or too frequent, to make it desirable that, in all these particulars of evil, there should be a diminution.

If his opinions run in this direction, then we can account for his speech, and know in what class of legislators to place his name. But the bill he opposes, so far from having a tendency to suppress or override the local powers now existing, enlarges those powers, and makes their use compulsory. If the language of the clauses was in

any measure doubtful, which it is not, the necessity of the case would have suggested their true import. The bill necessarily gives powers where they are not, and revives and enforces those which have become inoperative; and this, we say, was the necessity of the case—for it was not conceivable, except by the new Member for Lambeth, that the imperial Government should turn national scavenger, and perambulate great towns of the kingdom, broom in hand, in execution of its own sanitary measure. He will not believe either, what is almost universally clear to a demonstration, that some 20 per cent. of the licentiousness, and about the same proportion of the mortality, of the United Kingdom, is traceable to the indecent crowding together of the sexes, and the lamentable want of air and drainage, so long noticed, and so fatally experienced. He turns his back on all the evidence on which these statements rest, repeated and sifted though it has been; and says, in fact, that public health and public morality shall receive no improvement at his hands. We regard the subject as being so vitally and pre-eminently a working man's question, that we cannot consider as much less than a public enemy the individual who thwarts the measure of relief purposed, or deepens, by his influence, the roots of this extensive nuisance. Nor are our regrets at all the less serious, that, in this particular case, an individual, who made his way to the House of Commons as the apostle of progress and improvement, should, as soon as he had got there, take up a place among whatever is most stationary and corrupt in the elements of that assembly.

We insert in another column a letter from a correspondent, making an inquiry as to the progress of Messrs. BRETT and LITTLE'S Electric Telegraphic Converter, to which, we are happy to say, we can now give a reply. After a period of nearly 12 months, which has elapsed since the system was perfected and made public by the exhibition of beautiful models—during which time the Electric Telegraph Company have had the entire field to themselves, laying down many hundred miles of wire, and establishing stations in upwards of 60 large cities and towns—Messrs. BRETT and LITTLE have now got a chance of affording practical proof of the excellence of their plan—having to lay their telegraphic converter on the Whitehaven Junction Railway, and which, we understand, will be ready for operation in a few days. This is a step in the right direction; and, from all we can learn, if its simplicity and superiority over the "many-wired" one now in operation through the midland and northern counties is established, as we think there is no doubt but it will be, the Whitehaven Junction will not be the only company which will avail itself of the "Electric Telegraphic Converter." A report of a lecture delivered by Mr. LITTLE, at Whitehaven, will be found in another column.

The melancholy accident which recently took place on the Great Western Railway, near Shrivensham, arose partly out of causes which have a permanent existence on that line, though the immediate cause resolves itself into the negligence of the company's servants. The circumstances connected with the working of this great trunk line—which are dangerous in their character, and not of a transitory kind—are the surplus motive-power used on the line, and the perilous velocity with which the trains are urged forward. In this instance, the public incurring the fearful dangers of the broad gauge for the sole sake of its expedition, the accident, whose deplorable results will have fallen with so poignant a force on many families, was furnished in part from the original structure, and the working elements, of this line. The careless projection of a horse-box, or a cattle truck, on the rails, which were, in a few moments, to receive a rapid express train, travelling at the speed of from 40 to 50 miles an hour, was the immediate cause of the catastrophe; but the real originating causes of it were of older date, and of more constant presence upon the line. The public will have seen, with great surprise, from the proceedings and evidence taken before the coroner's inquest, that the Great Western Company had in their employment, to watch the regular working of the line, and to attend to the signals necessary to be used upon it, men who were habitually stupefied with drink and tobacco. This is the statement of the foreman of the jury; and it is further in evidence, that the superintendent of the Shrivensham station did not know whether a midday express train had as yet passed the point of his especial supervision or not. This is a sufficient amount of negligence and inattention to come out on one inquiry; and we think it no want of charity to conclude, that a more flagrant case may yet remain behind, to deepen the culpability of the next accident. A verdict of "Manslaughter" has been found against three of the company's servants; but no punishment they can receive will, in the smallest degree, efface the calamity to which they have so largely contributed. We trust the verdict will carry a heavy *deodand* against the company, whose remissness has not been without its effect in inflicting this flood of injuries; but, compared with that infliction, and as a counterpoise to it, both *deodand* and verdict are but miserable make-weights. We should be happy to offer to the bereaved families some consolation for the misfortune which has overtaken them, but that is impossible. Nevertheless, resignation will soften the sorrow which they are, for a season, called on to endure. The public will, we trust, look the more watchfully to the removal of all the causes in which such casualties have either their remote or proximate origin.

In the course of next week, the magnificent steam basin, which has been some time in preparation, on the margin of Portsmouth Harbour, will be opened for the accommodation of the British Steam Navy. We have noticed, in the course of its growth, this great and seasonable addition to our national defences, and, for our own parts, do not think there is any security we can take for our shores, or any external means of preserving our rank and estimation in Christendom, equal in condensed efficiency to an augmentation of our floating steam navy. We rejoice at its enlargement for its own sake; but when the genius of our people, and our historical instincts, are taken into the account, no less than that multitude of the mechanical arts which a steam navy attracts into its august train—when these are admitted to their just and natural weight in the question, we have a great preponderance of sentiment and reason on the side of works of the particular description which are just now perfected at the great naval homestead of Portsmouth. It would be all the better, as we think, if in the coast arsenals, means of a similar kind were taken, to build, refit, and otherwise accommodate, the new and vigorous arm of the public service. The Lords of the Admiralty have taken a marked and constant interest in the progress of these works at Portsmouth; and it is their intention, we have reason to believe, to unbosom the depths and capacity of the new harbour in a manner both brilliant and impressive.

GOVERNMENT CONTRACTS.—The past week has been an exceedingly busy one for Government contractors. On Thursday, the Commissioners of the Admiralty concluded the contract for the supply into store of Welsh coal as follows:—Sierra Leone, 600 tons; Fernando Po, 1200; Ascension, 1200; and St. Paul de Loande, 1000 tons. On Wednesday, the Finance Committee of the East India Company closed their contract for the delivery of 5000 tons of various descriptions of English and Scotch coal, to be delivered at Bombay. The tenders were numerous, and the competition greater than usual. Thursday was the last day for the Commissioners of the Navy receiving tenders for the monthly conveyance of the mails to Calcutta and China, and the despatches between England and Alexandria. Hitherto, the Peninsular and Oriental Company have had the contracts; and, as they have been at an enormous expense in building and fitting-up their splendid fleet for these lines, and are, consequently, better prepared for the purpose than any other party, it is probable the competition against them will not be strong; and the Commissioners always profess to decide in favour of parties who are best capable of fulfilling the duties of the contracts.

PROGRESS OF FRENCH MINING INDUSTRY.

(FROM OUR PARIS CORRESPONDENT.)

The unsettled state of the Government, and country, the great scarcity of money, want of confidence, and general stagnation of business of every description, have had a most serious effect on the iron-trade and mining in all its branches. At St. Etienne, St. Dizier, and other large iron districts, the greater portion of the furnaces are only in half blast, and the forges comparatively speaking, just keeping their hammers going, whilst in the coal mines of the basin of the Loire, Grand Combe, and other large mining departments, very little activity prevails from the want of funds, and a certainty of a sale for the produce at remunerating prices. The proprietors of the smelting houses of the D'Anzin Company have issued the following address to their workmen, to conciliate them under the present critical monetary crisis, and to re-assure them of support:—"Working Miners—Circumstances oblige us to curtail our works, and reduce our extraction of ore; it is an evil which affects us, as well as yourselves, and many others. Not being able to foresee how long it may last, nor its result, we wish, at least, to apprise you of our intentions. We will contend with energy against the difficulties, and restrain as little as possible the works. Notwithstanding the difficulty of sale, and the scarcity of money, we shall strive to ensure the payment of your salaries, and what is requisite for the establishment. Last year we assisted you to struggle against the high price of provisions—this year, it will be against the decrease in labour. We also ensure to your comrades their pensions, and to their widows and children the help that they receive from the generosity of the company. What would become of them, and of yourselves, if it were impossible for us to encounter such pressing wants? It will not be so—there is hope in the future—but the future entirely depends upon the preservation of order, for without that, no industry, no work; and without work, no existence for you and your families. Everything to the contrary is a fallacy, which your good sense must tell you—and it also tells you, that if our establishments were threatened, you would be so yourselves—and their ruin would be also yours. Working Miners—We have confidence in you, and we confide to you the care of preserving it, and to defend, if requisite, that which ensures your existence and our own. We rely upon you—therefore, rely upon us—be united mutually to support ourselves—that is true fraternity." Notwithstanding these difficulties, we are glad to see that the miners and iron-workers are bearing them with resignation, so as not to disturb the public peace, and compromise their establishments. The great cause of the stagnation, is the position in which the major portion of the railway companies is placed in France, for the want of funds to carry on their different operations, and the probability that, before long, the Government of that country will take upon itself the whole management. The Lyons and Nantes Company have found themselves obliged to make a call of 14 per share, since it had been announced that the above project has been delayed for some months only. The railway directors appear struck with apathy and indifference, the contractors are unable to fulfil their engagements from the scarcity of money, the iron and forgemasters no longer receive orders, and the miners are, and will be, cautious in their operations, until it is seen what measures the Assembly will bring forward as to the appropriation, or purchasing-up, of the railways and the modifications in the tariff, particularly as regards the importations of British coal, iron, &c., which, even under the present high duties, in greatly on the increase.

The iron-works of Denain and D'Anzin have been transferred to a new company, in which Messrs. Talabot take a principal part. The company has been formed for 99 years, and takes the interest of the old company. There are to be 20,000 shares divided among the different persons forming the company, in proportion to what they have respectively brought into the concern, either in the works themselves, or in cash. Thus the Messrs. Talabot take 8600 shares; M. Ferret, sen., 3870; M. and Mme. de Montaign, and Mme. Charpentier, 2580; M. Lelievre, 1075; M. Harpinier, Blanquet, and Co., 1075; and to the Société de Commerce de Brussels, 2800. A sum of 38,000l. in cash has been subscribed by the shareholders.

At the general meeting of the shareholders of the Vieille Montagne, held in Belgium a few days ago, it was resolved—that the directors should raise a loan on mortgage of the buildings of the company; or, in case such a loan could not be realised, that they should issue the 1960 reserved shares—preference being given to the shareholders in the distribution. The directors now announce that, not being able to raise the loan, they have resolved to issue 1460 of the reserved shares, at the price of 1750 fr. (70l.) each—each share being divided into five 14l. parts. These shares are to participate in the profits of the company, only from Jan 1, 1848. Shareholders disposed to subscribe for the new shares, must certify the intention at the offices of the company, in Paris or Belgium, before 30th May next. They will have the preference to the new shares, in the proportion of three-fifths of a new share for two old shares; and after that, in proportion to the amount of their demand. If any shares may then remain to be distributed, they will be allotted to the public in proportion to each demand.

The Great Coal Company of the Loire have held their meeting; but they keep the result of their deliberations secret, until they shall have been submitted to, and approved by, the country shareholders, at a meeting to be held at St. Etienne or Lyons.

BRUXELLES.—In consequence of the great depression that generally exists in the iron districts of Liege, Charleroi, &c., and the collieries of Mons, by the falling off in the exportations of metal and coal to France, the Government has given orders for several locomotives, and a large quantity of rails, to the well-known establishment at Seraing, so as to keep the men in employ. The same stagnation in railway operations exists in Belgium as in France, which has placed the mining industry in the critical position it is in. The commission on labour has published its report on the project of law relative to the entry of foreign machinery, locomotives, cast and wrought-iron, &c., and the reduction in the Customs Laws.

COMMERCE IN THE INDIAN ARCHIPELAGO.

The events of the past few years in the China Seas, New Holland, and the Eastern Archipelago, will form an epoch in the history of Britain of the utmost importance, as conducive to her future prosperity and commercial greatness. In the *Mining Journal* of the 4th March last, we noticed the formation of a company, under the title of the "Eastern Archipelago Company," formed for the purpose of securing the great commercial advantages which now present themselves over a large extent of ocean and territory in the east, of advancing the civilization of the natives of Borneo, Labuan, and other islands adjacent, encouraging the purchase of land by Europeans, and extensive immigration. We have now before us a pamphlet, entitled "Commerce and Free Trade promoted in the Indian Archipelago," by PHILIP PATRICK—London: Smith, Elder, and Co., Cornhill. In these pages the author takes a far more comprehensive view of the subject under notice, than could be comprised within the compass of a newspaper paragraph. He commences with a notice of the formation and progress of the East India Company, showing that, with a vast monopoly in the commerce of the East, it did not extend to a much greater amount than what was done by some private merchants—their whole attention and energies being devoted to territorial aggrandisement, and the support of their political position; and that, as liberal opinions progressed, and trade was thrown open to the enterprise of individuals, so did commerce increase, and in 10 years after the expiration of this company's charter, in 1888, the exports of British produce to India had increased from 3,421,421l. to 7,696,666l.

The charter, as printed by order of the House of Commons, states the object to be, "for the purpose of purchasing and acquiring, holding, improving, cultivating, selling, granting, or otherwise dealing with and making a profit of land, tenements, and hereditaments, and the produce thereof, in the Island of Labuan, and the lands adjacent; and of working therein all mines, pits, and quarries, and getting and raising all coal, stones, earths, ores, minerals, and metals, and of trading and trafficking therein and therewith; and also with any of the authorities or inhabitants of the said island and the lands adjacent; and of exporting from the said island, or lands adjacent, the produce to arise from the premises, or any of them; and of importing thereto such articles as may be by the said company be deemed necessary for the furtherance of all or any of the purposes aforesaid, and of purchasing or hiring British ships, and other ships—for all or any of the purposes aforesaid." This charter, he it remarked, confers no monopoly on the company—all her Majesty's subjects will have an equal right to trade to Borneo and other islands, and will enjoy the protection of the Government in every respect.

The first object of the company will be to develop the resources of the great coal-field, of 160 miles in extent, which will afford the utmost benefit to ships frequenting these seas, and will, doubtless, be the means of establishing mail communication from Singapore, through Torres Straits, to Sidney. The pamphlet proceeds to remark on the exertions of Mr. Brooke, in his endeavours to advance the interests of the natives, as well as the settlers; his success in the suppression of piracy, once so alarmingly prevalent in these seas; and his anxiety for the general improvement and success of the colony. It is probable that this company will eventually prove one of the most successful, in a pecuniary point of view, in the kingdom; and to all who are interested therein, or in the welfare of our eastern possessions, the pamphlet under notice cannot fail to be read with pleasure and advantage.

IMPROVEMENTS IN SMELTING COPPER AND OTHER ORES.

(Specification of patent granted to William Brinkmyre, of South Down, Cornwall, chemist, for improvements in smelting copper and other ores. Entered May 16, 1848.)

My invention relates to the common ores of copper, silver, lead, tin, and antimony, which ores are usually sulphurets, or arsenurets, and occasionally arseniates, carbonates, and oxides of some of the said metals; but the ores which are best adapted for the improvements herein described are sulphurets and arsenurets, and are well known to chemists and others under the names of copper pyrites (sulphuret of copper and iron), copper glance (disulphuret of copper), variegated copper ore (disulphuret of copper and sulphuret of iron), tin pyrites (cupreous sulphuret of tin), white copper ore (arsenuret of copper), fahl ore (sulphurets of copper, arsenic, antimony, iron, zinc, and silver), argentiferous sulphurets of copper, lead, and antimony; and also, but in a minor degree to, the peroxide of tin, and the carbonates and oxides of copper, when they are contaminated with sulphurets, arsenurets, and arseniates; and in order that this invention may be fully understood, I now proceed to state, that it has for its objects—first, to abate the nuisance arising from the volatilisation of the sulphur in the state of sulphurous and sulphuric acids; and the arsenic, either in the metallic state, or that of arsenious acid, in the ordinary process of smelting copper; and to save about two-thirds of the sulphur of the common ores, by converting it into sulphuric acid, and the most part of the remainder of the sulphur into salts, formed of sulphuric acid and the oxides of copper, iron, or zinc, by roasting the common ores of copper, in a pulverised state (fine dressed copper ore), on trays in iron pyrites kilns, by the heat evolved during the combustion of iron pyrites (mundic)—thereafter to lixiviate, and to extract, by the well-known processes of cementation, or electro-metallurgy, 1 per cent. more pure copper from 7½ per cent. ores, than is obtained by the ordinary process of smelting; and, by the same processes, to extract silver from the sulphuret of silver, and particularly from sulphuretted copper ores, as have been proved rich in silver by assay or analysis; secondly, instead of using a nitrate and sulphuric acid alone in a nitre-pan, in the ordinary way, to mix on a tray a nitrate (in the same proportion, relative to the sulphur, as heretofore) with any of the above-named ores; then to calcine the mixture on the said tray in a mundic kiln, so that the nitrate of potash, or of soda, shall serve, at the same time, to supply the vitriol chamber with the deutoxide or other oxides of nitrogen (indispensable in the manufacture of vitriol on the large scale), and to oxidise at least a portion of the sulphur and the arsenic of the ores, by converting them into a sulphate and arseniate of potash, or soda, which may be separated by water.

In the extraction of copper, by roasting the common ore of copper (copper pyrites, usually impure, containing sulphurets of zinc, lead, and other metals, also arsenurets, with silicious matters), it is comparatively easy to volatilize the sulphur of the iron and zinc, in the state of sulphurous and sulphuric acids, especially from the former metal; but the sulphur, in combination with the copper, becomes, in a great measure, sulphuric acid, by combining with oxygen; and the copper, being oxidized, the acid and oxide combine to form a sulphate of copper, as I have found by experiment; and the acid adheres, with great tenacity, to the oxide of copper; and it is from this cause that so many roastings, meltings, &c., are required to free the copper from its sulphur, in the common process of smelting copper. I have also found, by experiment, that the sulphate of copper may (after the common ore has been submitted to a strong heat) be easily dissolved out nearly pure, at a lower heat—however, the roasted ore may contain more of sulphates of iron, zinc, or silver, than sulphate of copper.

I now proceed to state, according to my experience, the best manner of carrying the above improvements into effect. The iron pyrites kilns are to be constructed of the common form, but which it is unnecessary to describe, as they are well known. I would, however, recommend that the ash-pits be provided with iron, or leaden, cisterns, for holding water, in order to abate the temporary nuisance of the sulphurous and sulphuric acids, when withdrawing the ashes of the iron pyrites, and which cisterns should have a sliding cover, to prevent the undue evaporation of water into the kilns.

The outside dimensions of the pair of kilns (for the quantities herein-after directed to be operated upon) may conveniently be—in length, 13 ft.; breadth, 7 ft. 4 in.; height, 9 ft.: the inside diameter of each kiln should be 5 ft., and is best constructed in the form of an octagon, and lined with fire-bricks. In each kiln there should be placed, upon two or three stout iron bars, just above the charging-door for the mundic, an iron, or copper, tray; or one of iron, coated on the inside with stoneware, or porcelain; which tray should be 4½ ft. long, by 3½ ft. wide, with a rim 3 or 4 in. high. These dimensions readily permit the hot air and the acids to pass through the pipe, at the top of each kiln, into the vitriol chamber. The charging-doors of each kiln, should be provided with an air-hole and a sliding damper, as much of the success of making vitriol depends upon the admission of air above the mundic, as well as that which is required to pass through the ash-pit, to support combustion. At the side of each kiln, and on a line with the tray, there should be a narrow opening for the tray, containing the roasted ore, to be pulled out, and then emptied for lixiviation into a lead cistern, placed about 3 ft. below; which cistern should be supplied with hot water from the cooling cistern of the kilns. After which, the tray may be charged anew, with a mixture of lixiviated and fresh ore, either by a shovel, or by a hopper at the top of the kiln. The vitriol chamber, for this pair of kilns, may be 150½ ft. long, 11½ ft. wide, and 8 ft. high; and the length divided into 3 parts (technically, bottoms). The first compartment, that which is nearest to the kilns, should have its acid kept apart, being comparatively impure; while the acid, in the 2d and 3d compartments, is equal to that from the best sulphur. The above dimensions of kilns and vitriol chamber, are sufficient, for the one to calcine two tons of copper ore per diem, and the other, to make, in the same time, from the copper ore and mundic, three tons of sulphuric acid, sp. gr. 1.847.

As much uncertainty prevails as to the hourly produce of vitriol in a chamber, I recommend the following arrangement, which will show quickly and accurately the produce of vitriol. For each compartment of the vitriol chamber, there is required a stout glass tube, about 22 inches long, which is bent at 6 in. from one end to a right angle; and the long side (16 in.) graduated into inches and tenths. The short leg of the tube is then inserted into a piece of ¾-in. lead-pipe (previously soldered into a hole, close to the bottom of the turned-up lead), so as to penetrate to the inside of the chamber, and the space between the tube and the pipe made tight by luting. About a foot from each of these glass tubes is fastened a double-curved lead syphon—one leg of which is inserted under the bottom of the side lead of the chamber—which syphon is supplied with a mouth-piece, and has at the top bend a small orifice for admitting air. In taking an observation, it is first necessary to blow down the graduated tube to expel the acid into the chamber; on withdrawing the mouth, the true depth of the inside of the chamber is seen on the tube; then, by placing the forefinger of the one hand on the small hole of the syphon, and with the other closing the lower aperture, and withdrawing the air by the mouth-piece, the acid quickly flows, and continues so long as no air is admitted by the small aperture. On testing this acid by the hydrometer—which, however, should be occasionally compared with a standard hydrometer, or a specific gravity bottle, as vitriol corrodes the common flint-glass hydrometer much more than alkali—the real strength of the acid is known, and the produce determined.

[To be continued in next week's *Mining Journal*.]

MINERAL WEALTH OF ALGIERS.—MM. Elie de Beaumont, Dufresnoy, and Bonaud, have presented to the Paris Academy of Sciences a report on a communication made by M. Fournel on the mineral wealth of Algiers, founded on personal survey. M. Fournel says—"As to the situation of iron ore, indications are found near the Cap de Garde; but in the mountains of Bou Hanra in the small chain of Bellifia, and in the mass to the north of the lake Fizarra, the developments of ore occupy an importance worthy of considerable attention. Throughout a distance of four leagues, the crappings-out of a considerable number of beds of ore may be observed, attaining sometimes a considerable size, and never less than from four to five yards in depth. At the north of Fizarra there is an entire mountain (the Mohia El Hadad, or iron quarry), which rises out of the gneiss, and literally presents from its base to its summit—that is to say, a height of about 108 yards—one mass of pure oxide of iron, without the admixture of any other substance." To the east of this mountain, M. Fournel traced upwards of 16 points where the ore cropped out. M. Fournel has also found large quantities of ancient scoriae, incontestably proving that these sources of mineral wealth had been worked by the Romans, or, perhaps, by the Vandals; there are also scattered amongst these scoriae specimens of the metal produced—so that by analysis it can be ascertained from which bed of ore the metal produced at such and such a point was obtained. Pliny does not appear to have been aware of the existence of these iron ores of Numidia. Ibn Hannucal, a writer of the 10th century, has, however, mentioned them. The period, therefore, of the metallurgical operations at these places, must have been between these two epochs—the 1st and 10th centuries.

Original Correspondence.

COPPER SHEATHING—ITS WEAR AND WASTE.

SIR.—There is a question which, if agreeable to you, may be opened in your columns for discussion—not only as interesting to your mining metallurgic, and shipowning readers, but as likely to attain more elucidation and development there than in any other periodical. It regards the truth of the alleged deterioration of recent copper sheathing for ships—and, if true, then its causes; and third, and lastly, its remedies, or the means of restoring, or improving, upon the good qualities of the older sheathing. These three divisions may be conveniently taken separately—as well for the sake of conciseness and clearness, as for their application to somewhat different classes of readers. The present letter may, therefore, be directed only to the truth of the report, and addressed to shipwrights, shipowners, and especially to old masters of vessels. It is, indeed, matter for regret, to use no stronger term, if, while other manufactures are improving at an unprecedented rate, copper sheathing—in few, wealthy, and highly intelligent hands—should be, and has been, gradually falling off. If such be the fact, its exposure will not be long in leading to its correction.

That, in the Royal Navy, copper does not wear so well as 20 or 30 years ago, is fully ascertained; but whether this is attributable to intrinsic defect in the new metal, or to the conditions and circumstances of its application and use, is not so clear. The merchant shipwrights I have not found so decided on the subject, and should be glad to obtain, through your columns, their opinions and observations upon it; especially if illustrated and supported by well-stated cases. It has been frequently observed in the navy, that the coppers which wear best cover themselves with a firmly-adhering scale, or crust, of a pale green; whilst the worst wearing keep bright, or take on a soft blue crust, with patches, or edges of purple. Is merchant sheathing observed to wear cleaner and brighter now than 14 or 20 years ago?

With respect to the quality of metal—I have been called on to analyse many specimens of good and bad wearing sheathing, old and recent, and to examine a great many more; and have not found, in the analyses, any characteristic, or constant differences, between the bad and the good; nor have those which wasted quickest, or wore worst, at sea, been uniformly, or decidedly, more susceptible to corrosive agency, in the laboratory, than the very best old samples.

This would indicate the waste being due rather to the conditions of use and application, than to defect in the metal; but to come at something nearer to certainty, I have now between 20 and 30 samples, distinguished for good or bad sea wear, affixed to a buoy in the tideway, under exactly similar conditions; and, when these come to be stripped off, if the greater or less waste correspond with their previous sea wear, it may be then fairly referred to quality of the metal, and will form a more trustworthy ground for analytical inquiry. Meanwhile, useful light may be thrown upon the research, by comparison of facts, notes, and observations, in your valuable columns; but as the term "conditions" is often used to cover the want of definite ideas, it may be right briefly to enumerate the sort of conditions here meant:—1. Friction; from heavy shore work, faster sailing, or more active service.—2. Corrosive waters; as the drainings of mines, manufactures, or sewers, or putrescent organic matters, in the sea itself.—3. Climate; corrosive action being increased by heat; and the copper sheathing is well known to waste most rapidly in tropical climates.—4. Weather; especially electrical or thundery, which often increases chemical action.—5. Electro-chemical protection, or the reverse; by the nails and other metallic articles, in contact with the sheathing, having different electro-chemical quality.—6. The tar, or other material, with which the bottom is paid; under the sheathing, having acid, alkaline, or neutral re-action.—7. The timber itself of which the bottom is built; some wood having a good deal of acid quality. It is not intended to limit the extrinsic circumstances affecting the wear to those here enumerated, but only to convey some distinct notions on the subject. Doubtless, others will have occurred to attentive observers, which, brought together, and compared in your columns, may throw light on each other; and, in asking such information from others, my own share shall not be withheld. From what I have hitherto collected, I am led to infer that, whilst much of the increased wear and waste are due to friction and corrosive action in the waters, &c., the metal itself has undergone some unfavourable change, in either the chemical or the mechanical processes of manufacture; but there is so much to be said on the other side, that this inference is quite open to correction.

Plymouth, May 13.

J. PRIDEAUX.

GALVANISED IRON—MR. NASMYTH'S EXPERIMENTS.

SIR.—In the *Mining Journal* of last week there is an interesting letter from Mr. James Nasmyth, detailing the results of an investigation which has been lately made, at the desire of the Lords of the Admiralty, by their committee on metals, with the view of ascertaining whether wrought-iron, which had been subjected to the process of galvanisation, by being coated with metallic zinc, would be deteriorated as scrap-iron for remanufacturing. The clear statement given us by Mr. Nasmyth proves, most satisfactorily, that the presence of zinc in wrought-iron, so far from being destructive to its strength and tenacity, actually improves its quality in a very important degree. The perusal of this letter has just recalled to my mind one of the numerous schemes which I had devised for the use of anthracite coal—viz.: the preparation of pure oxide of zinc, to be used as paint, for iron-work more especially, making joints, &c., in lieu of white-lead. If people could be once induced to make a trial of anthracite coal, worked by a blast, for several manufacturing operations, the value of this peculiar fuel would be established. It only requires a beginning; it is quite possible to treat the sulphuret of zinc—a very abundant ore, known as blende, or black jack—so that pure oxide of zinc and sulphuric acid should be prepared by the same operation. This would be a very profitable business, and create a consumption for a considerable quantity of the ore; but at the present price of the metal, it would even pay handsomely to prepare oxide of zinc from spelter. Say, in round numbers, 4 cwt. of spelter, worth 2l. 16s., would yield 5 cwt. of oxide of zinc, which, at the price of dry white-lead, would be worth 6l.; the cost of labour and fuel being trivial, there would be a profit of something like cent. per cent. While upon this subject, I will mention another idea which occurred to me in connection with it; I believe it is a desideratum, to find some material to cover the bottoms of iron ships, to keep them clean—that is, to prevent barnacles, &c., adhering to the iron in hot climates. It would be easy to prepare a pure oxide of copper, which could be ground into paint with linseed oil. I propose to paint the iron first with zinc, and afterwards with copper. Your useful paper being the organ of the mining interests, I am induced to make these suggestions through the medium of its columns. I am no electrician, so leave the consideration of the above arrangement to those who are. I have been long endeavouring to bring anthracite coal into use for treating different ores, but more particularly those containing volatile bodies, as arsenic, sulphur, and zinc. I have met with no encouragement from the anthracite proprietors—our views seem to lie quite in opposite directions. I was sitting at breakfast, the other morning, with one of the most spirited and enterprising of them in this district, when he said very seriously he would be ready to spend 1000l. upon getting anthracite introduced into London for cooking chops.—T. H. LEIGHTON: *Cornwall*, May 16.

SEPARATION OF IRON FROM BRASS OR GUN METAL.

SIR.—Can I be informed, through the medium of your columns, of any ready method of separating iron from brass, or gun metal, when in a melted state, in a crucible containing 80 lbs., or thereabouts? Also, if the mixtures of metal advertised by Mr. Mears, of Whitechapel, as Patent Bearing Metals, are really patent? or, how can I ascertain whether they are the subjects of patents or not?—H. B.: *Southwark*, May 17.

DIALLING.

SIR.—Your scientific correspondent, Mr. Robert Mushet, does not appear to be aware, that bore-holes can seldom be put down in a perfectly perpendicular direction, and that in deep bore-holes this variation frequently takes place to the extent of several feet; and further, that there is no certain data by which to estimate the extent or direction of the deviation. The intervention of a bore-hole by a drift, at a considerable depth from the surface, is, therefore, attended with a degree of uncertainty. Had Mr. Robert Mushet considered this before he wrote his letter of the 8th inst., he would have avoided exhibiting himself to the public as the discoverer of a mare's nest.—CHWARRIE-REG: *Merthyr Tydfil*, May 18.

BORING BY STEAM.

SIR.—Being a constant reader of your valuable Journal, my attention was attracted by a letter from Mr. Gard, in your Number of the 29th ult., respecting a patent, which he had taken out, for "Boring by Steam."

It would be well if all inventors would consult the records of the Patent Office, to see what others had done before; no doubt it might save a considerable amount of time and money. I have an idea that it may be on the very heels of a patent, taken out by W. and C. Mather, of the Salford Iron-Works, Manchester, in January, 1846. Though there is no claim to the principle of "Boring by Steam," rope, or chain, in the abstract, yet this plan is adopted by us, in conjunction with our patent boring apparatus. By way of information to your numerous readers, especially to your correspondents, Mr. J. B. Wilkin and "Steam," we beg to say, we have succeeded in boring, by our patent machinery, something considerable in the way of Artesian boring, either for water or air-shafts, &c., for mines. Having been for some time fully alive to the desirableness of accomplishing this object, at something like a moderate cost, it led us to consider and improve upon the old and tedious method of boring with rods—it being so unmechanical and antiquated; besides the enormous amount of time and labour consumed, to go any considerable depth; and the great uncertainty of succeeding, from the great risk of losing the tools down the hole; also, the size of the hole being generally so small, that it must require an immense pressure to discharge anything like an adequate supply, in proportion to the cost of obtaining it. These leading defects in the present system, led us to consider and improve, and thus take a patent for such improvement. Now the principal feature of our invention is, just what your correspondents seem to think so very desirable—viz.:—"steam boring"—and, considering the time required to bring any new thing to a satisfactory bearing, we have succeeded in boring two holes, 16 in. diameter; one, 117 yards deep; and the other, 170 yards deep; and having obtained an excellent supply of good water from the latter, it prevents us going deeper at present.

The machine is worked by a steam-engine, 3-horse power, and the method we adopt is upon the percussion principle. The boring-head is about 20 cwt., and is attached by a flat rope to a winding on drum. The head is lifted by a cam, or wiper, and let fall by its own gravity. The peculiar feature of this boring-head is one part of our claim; and it is so constructed, that at every blow it strikes upon the rock it turns round about 1/4th of a revolution—thus making the cutters never to strike twice together in the same place; after it has penetrated about 12 or 14 in., or as the strata will admit, it is then withdrawn; and another part of our patent apparatus is let down, and, in a few minutes, the whole of the pulverised rock is brought up, varying in size to 12 in. circumference. The cutter block is again put down, and set to work, and so on, *ad infinitum*. With this plan of boring, the hole may be varied in diameter, from 12 in. to 3 ft.; and to parties interested in boring, we would particularly solicit their attention to the leading features of this improvement—viz.: economy and dispatch.—C. MATHER: Salford Iron-Works, May 13.

P.S.—As a reply to your correspondent, "Steam," respecting the applicability of boring on Mr. Nasmyth's steam-hammer principle, we beg to state, that that gentleman was invited to inspect the present machine in full operation: he was then consulted as to the utility of using the hammer principle, and he kindly consented for us to try it, if we thought proper.

SIR.—Since writing the preceding letter, your Number of the 13th inst. came duly to hand. In it I find a description of Gard's machinery for boring by steam; and, much to my surprise, judging from the description, he has included in his patent some portions of his machinery which we have had at work more than three years, though, in our patent, we make no claim to any arrangement of machinery above the ground, either for giving the percussion blow to the cutter-block, or for the winding-up apparatus. Yet I humbly conceive he has specified the "wiper," or cam motion, for lifting the borer—a part of our machine, which we embody on a much better principle. Judging from the description, we consider our plan of working the cam much superior; in fact, altogether, as a whole, our machine is much better, independent of what we claim as our patent and merit of construction—viz.: the turning motion of our boring-head, which I described in my last letter. But, as I said at the outset of my former epistle, how important it is to see what has been done before, as you and your numerous readers well know, a patent cannot be taken for a thing that is daily and openly in full operation long before for the same identical purpose.

If Mr. Editor, you should think our machine of sufficient interest to merit a place in your valuable Journal, we shall be happy to send you drawings, together with a full and lucid description of the same.

Salford Iron-Works, May 18.

COLIN MATHER.

[We shall be happy to devote space for the description and drawings of Mr. Mather's invention.]

THE ELECTRIC TELEGRAPH.

SIR.—When we consider the simplicity and almost perfection to which Prof. Morse, in America, has brought his system of telegraphic communication, although extending over some thousand miles of railway, and having witnessed the system adopted and patented by Messrs. Brett and Little, in this country, it does appear not a little singular, that the Electric Telegraph Company, who started with the evident intention of monopolising everything before them, should have wilfully adopted the most complex of any of the plans yet patented—that of Cooke and Wheatstone. Now, I am willing to accord every credit to these gentlemen, for the great perseverance and research evinced by them in establishing, in this country, the practicability of instantaneous communication, by means of electricity; but improvement upon improvement succeeded, and the consequence is, that this, which may be called the original system, is crude in principle, and uncertain in operation—employing a multiplicity of wires, by which the communication is rendered complex and difficult to execute.

The present position of the company may be judged of from the fact of their finding the commercial portion of the business a failure—indeed, to such an extent, that numerous employees at each of their stations, throughout the kingdom, have been discharged. Not being acquainted with Messrs. Brett and Little, could you, or any of your correspondents, inform me, through your valuable columns, whether anything has yet been done to establish their system of telegraph on any of our lines? If not, I think now is the time to press its advantages on the consideration of the public. I have witnessed several plans in operation; and, for simplicity and certainty in action, the latter is, in my humble opinion, by far superior.

Fenchurch-street, May 17.

A RAILWAY SHAREHOLDER.

THE LATE ACCIDENT ON THE GREAT WESTERN RAILWAY.

SIR.—The frightful accident which has lately happened on the Great Western Railway at Sharnham, is only the harbinger of others that will occur from the same cause—namely: obstructions on the rail; and it will from time to time be over thus, until the passengers and goods trains run on distinct, separate lines. For perfect safety, there ought to be two lines for passenger carriages, and two for goods trains. It may be said, that a great expense would attend such an arrangement, both as to an extra quantity of ground, and two additional lines. Be it so; but the question is, whether railway companies, which have monopolised the entire carriage of the kingdom, are not bound, at any expense, to protect the lives and limbs of travellers, who have no other means of transit now left to them?

May 15.

Z.

ON CONDUCTING RAILWAY TRAINS WITH SAFETY.

SIR.—In your Journal of the 5th of February last, you kindly introduced a letter of mine, containing a plan for conducting railway trains and communicating with the passengers. Had my suggestion, as to the conductor being placed in front of the whole train, been followed up, the late deplorable accident on the Great Western Railway would not—could not—have taken place. The conductor of a train ought to have the sole superintendence of that train—sitting in front of the engine driver, he ought to see that the road is clear, leaving to the other only his own duty to perform, which is quite enough—that of driving a train 35 miles per hour. A simple arrangement would enable the conductor to convey instantly what he wanted to the engine driver, who should either drive slowly, reverse the engine, or stop if required. And, surely, the expense is a mere nothing, compared to the risk of life and sacrifice of property that is every day made, for want of a simple, but yet effective precaution. I cannot understand why a conductor is placed behind, instead of in front, of the train he has to conduct. A coachman does not go to the guard's box to drive a coach, but he is very properly placed in front, where he can command the road, and see what is before him; hence, we seldom find him coming in collision with other carriages; and, I believe, if my own, or some similar plan, were adopted, we should have very few accidents occurring from collisions—and if any, they would arise solely from carelessness, and subject the parties to severe punishment. I am certain, however, that the fact of a conductor being in

the face of the danger, likely to occur from his own carelessness, would make him attentive to his duties. I hope these remarks may lead to an introduction of some better means being taken for the safety of the public.

Abergavenny, May 15.

JAMES TODD,
Engineering Surveyor.

RAILWAY POLICEMEN.

SIR.—I think a hint from you, in your valuable Journal, to the railway directors, and those concerned in employing police on the lines, would, perhaps, be of some service. I am given to understand, that in choosing the men, they must be of certain height and certain age. Would it not be better to choose a man filling so responsible a situation as this—and it must be remembered, that life depends on the ability and intelligence of the party—more for his qualifications than his height? The man who is only 5 ft. 6 in. high, with good qualities, is rejected, because he did not grow 2 in. higher. It is to be hoped the time is not far distant, when the 5 ft. 6 in. man, who is, in every respect, intelligent and well capable, will be able to fill situations on the different railway lines: seeing the continuance of great sacrifice of our fellow creatures, which, in many cases, occurs through neglect and stupidity of those who are employed, I think we should have more caution exercised in choosing men to fill these very responsible situations.

Bedford Iron-Works, Tavistock, May 18.

THOMAS NICHOLLS.

REFORM OF THE PATENT LAWS.

SIR.—In undertaking the advocacy of the general interests of inventors and patentees, I was actuated simply by the idea, that that highly-meritorious body of men, drawn from all ranks of life, were, in respect to their inventions, under the ban of a law, or rather practical system (for the theoretical part, or law, properly so called, is as good as any in existence), which appeared to me might, without revolutionising the existing state of things, by some judicious alterations in the practical part, be rendered in its operation equal to its profession—namely: a system of encouragement to inventors to exertion for the public good. Indeed, I confess myself one of those who see much wisdom in our ancient laws, and who desire rather to have their true principles carried out in a beneficial manner, than to start at once, *de novo*, upon new principles and practice, which may, on the morrow, be found entirely erroneous. Thus, I have not, in my petition, asked for any organic change in our laws; but, simply, that an inventor may be assured, without delay, upon showing he has an invention, which he states will be of public benefit, the temporary exclusive property therein, without first of all requiring him to pay a large sum of money; but, on the contrary, arranging the payment of fees in such a way that, without diminishing the total revenue therefrom, they shall in few, if any cases, press too heavily upon the needy, but ingenious, inventor; and, further, that some measure of reform be added, as regards the enormous expense which is now required to maintain patent property before the courts of law. Such being my views, though equally desirous to see the inventor—aye, and "the improver" too—substantially rewarded, or repaid, for his exertions. I am, with respect to it said, opposed to Mr. Craddock and Mr. De la Haye, as regards the organic change in our laws required to assimilate patent right to copyright. But, independent of my own convictions on the subject, I can see that an advocate for a too sweeping change, would, in the present state of our Legislature, be almost sure to be wholly non-suited.

Mr. De la Haye, in No. 663, has some remarks in support of Mr. Craddock's opinion—however, I need not fill your space with any reply thereto; because, I think, he will find that my reply to Mr. Craddock (inserted in the same Number) will operate as an answer to his communication; but I cannot forbear expressing my thanks to him for the interest he takes in my efforts in this truly important matter.

In your last, I noticed a communication from Mr. A. Campbell, secretary to the British Inventors' Protecting Company—and upon the subject he writes about, I would wish to say a few words. My experience tells me, that such an association as he speaks of would, under the present system, prove a real blessing to inventors of small pecuniary means; and even if the Government dues on patents be moderated, such a society would be of the greatest utility; for to pay the Government dues is not all an inventor has to do. In order to reduce crude ideas to practical realities, he must make drawings and models, and, in many cases, call in the aid of professional men—all of which is attended with considerable expense. Again, a person who does not move in the particular sphere in which his invention is to operate, would fail in getting his invention into work, if it depended upon his own unaided efforts. But an association, that is to be the rendezvous of inventors, would be a depot, where all parties might apply; and if the society be energetic, and have the assistance of an intelligent and active secretary, &c., it will do more towards a true and beneficial organization of labour, than Owen, Louis Blanc, or any other of the numerous would-be enchanters, who seek to restore the Golden Age.

210, Strand, May 18.

F. W. CAMPIN.

METROPOLITAN SEWAGE MANURE.

SIR.—In the *Mining Journal* of the 6th inst., you inserted a report of a meeting of the Metropolitan Sewage Manure Company; on a *prima facie* view of which, from the economical proceedings of the directors, and from the state of the finances, the prospects would certainly appear not discouraging. There is, however, a question arising from the establishment of works such as those under notice, a satisfactory answer to which, from any of your correspondents, would, I know, prove of considerable interest to many of your readers. The directors' report informs us, that the Commissioners of Sewers have conceded to the company the right under the Act of Parliament to the metropolitan sewage, and from their having purchased two engines, pipes, &c., and caused the market gardens and fields in the neighbourhood of Fulham, to be surveyed, we may conclude that they are nearly prepared to commence operations. I do not for one moment doubt, that previous to obtaining their Act, the best available opinions were obtained, both engineering and chemical, and that satisfactory evidence of a like nature was gone into before the committees of Parliament. But it is to be remembered, that the present undertaking is not similar to a water or a gas company—the success of which experience has rendered certain; the entire of this company's proceedings will be but one great experiment; and it has yet to be seen, whether the deposit of the contents of the enormous sewage of London in the suburbs rapidly increasing in population, will not be an inveterate nuisance. Even should the company's chemical staff succeed in deodorising such an immense mass of putrid animal and vegetable matter, mechanically held in solution, which I much doubt, it has yet to be proved, that such process will render it disinfected, or uninjurious to human health.

They must, undoubtedly, have to endure a large outlay of capital for the fittings at stations, engine-power, the necessary pipes, and the underground works in London; and should the nuisance, from the deposit of the manure, prove, as I almost fear it will, intolerable, it is needless to say, the company will sustain such a shock and loss, as it will not very soon recover. The proposal, by another company, made to construct enormous tanks for holding the manure to evaporate, did appear to me to be something tangible—though here, as in the former case, I cannot help fearing that the olfactory nerves of a whole district will be seriously invaded; to say nothing of the enormous cost which will have to be borne before any (or if any, I fear, at all events, not a profitable) result will be arrived at.—A COTTAGE RESIDENT: Fulham, May 18.

THE LATE ACCIDENT BY STEAM EXPLOSION.

SIR.—An article having appeared in the last Number of the *Mechanics' Magazine*, on the subject of the late fatal accident, by the explosion of a cylinder connected with the roasting apparatus, patented by the late Mr. Dakin, from which an inference may be drawn, that it applied to the patent secured by that gentleman, I think it only right to observe—having inspected the machinery employed, and from which the late fatal accident arose—that the cylinder which exploded was perfectly distinct from Mr. Dakin's patent, being merely an adjunct for creating and supplying the required heat to the interior cylinder, in which the coffee was subjected to roasting. Your insertion of this, as correcting an error which is calculated to mislead the public, will oblige—

Fleets-street, May 19.

GEORGE SHEPHERD, C.E.

LAUNCH AT NEATH ABBEY.—Last evening a splendid iron barque, upwards of 500 tons burden, built for the Messrs. Bath, of Swansea, and intended for the Chili trade, was launched at Neath Abbey. At the hour appointed, several hundreds of the inhabitants of Neath, the Abbey, and the neighbourhood, assembled to witness the event, which passed off in a most satisfactory manner, the noble barque gliding, after some time spent in extricating her, into the water with ease and grace. The barque was named *La Serena*, and was built by the Neath Abbey Company.—*Combrin*.

OF MUNDIC AND ITS USES.

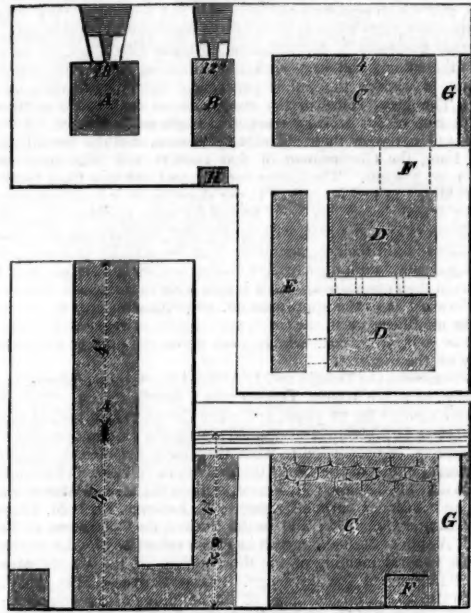
BY M. W. BINDING, BERGMESTER, IN THE NORTHERN DISTRICT OF NORWAY.

In the working of several of the existing and abandoned copper mines, large lodes of mundic are often met with in a state almost entirely clean: this everywhere, on account of the difficulty in dressing and smelting, is considered a worse matrix than the common greenstone.

When on my official tour of inspection, in the year 1846, I visited all the northern copper mines, I was surprised that they had not, at any of the works, endeavoured to convert these large masses of mundic to any useful purposes, although it was clear enough, that our copper works by this could be placed on a surer footing than the scattered and low copper per centage at any time could afford; not only on account of the profit which would accrue from a proper use of the mundic, but likewise from the increased development that could be afforded to the mundicky lodes, when all the costs were not thrown on the scanty production of copper.

The first, and most necessary, thing to which it is necessary to direct the attention, was a cheap production of sulphur. The common way of distilling in retorts would have answered in most places—but it was easy to foresee, that the quantity of fuel that would be required would cause an opposition of the mining proprietors to this method; the difficulty of procuring cheap fuel of any kind, likewise speaks against it. What was required, was the possibility of working on a large scale, so as to deliver a maximum quantity of sulphur, with the least possible amount of fuel, and moderate rate of labour—the possibility of using mundic of all sorts, so that neither the smalls should be thrown aside, nor the dredge be diminished, in such a degree that its ulterior working should be deteriorated. The Swedish sulphur furnaces answer nearly all these purposes, except the most important—they do not deliver sufficient proceeds.

By following the principles of this roasting, I was led to the result, that the object in view might be obtained by subjecting the ore to open calcination, under the influence of a deoxidising flame. With the assistance of a liberal and enlightened member of the direction of the Roros Copper Works, the means were placed at my disposal to try the experiment. The trial took place at the rolling mills of Leir Foss, and was made in conjunction with Mr. Stromejer, the director of the manufactory of chromate of potash.



A. Generator. B. Fire-place. C. Ore Furnace. D, D, E. Brick chamber. F. Aperture to conduct the gases from the furnace. G. Aperture through which the ore was placed in the furnace, covered while working. H. The aperture used in order with security to light the gas.

It was first our intention to have used a wind-furnace, with several fire-places, or openings, to allow the flame to go into the furnace, in the same manner as a lime-kiln constantly burning; but as the local circumstances would not allow this, the above form was chosen. From E the different sorts of gas were conducted, through a cold iron pipe, to the larger chambers of wood. In the generator, which, as can be seen, is built according to Eckmann's construction, two forms were first used, one above the other, at the distance of a foot; the generator was solely filled with charcoal. The consequence of this was, that there was a great degree of heat in the vicinity of the forms, so that masses of slag were formed, which deposited themselves in the lower form, and filled it, while the generator obtained increased heat. With coal and wood, equally mixed, this was decreased, and the formation of gases took place. Afterwards, we used, with the same advantages, only one form. In the fire-place, as well, only one form was used. As will be seen afterwards, the roasting was much slower. If this would be the case with more forms and a greater pressure of blast, we had no means of ascertaining. By laying the forms deeper, in order to lengthen the roasting-places, we met with no better results. The blast was taken from one of Vidholm's machines, and was very uneven. The ore furnace was filled, as high as the cut shows, with six skippon of ore, from the mines of Ytteroen. This ore is free from extraneous matter, with the exception of about 10 per cent. of carbonate of lime, which is nearly equally divided over the mass. It was laid in pieces of 4 and 6 inches, loosely piled, in order not to impede the passage of the different gases. After we had fired on the furnaces from two to three hours, the sulphur began to decrepitate. We had expected it would have condensed in a liquid form, so that we could have tapped it from the bottom: this, however, did not occur; on the contrary, it sublimated as a fine powder, and only a small quantity, in consequence of a later smelting, was found in a massive form in D. Contemporaneous with the development of the sulphur, and before it had commenced in a great degree, a large quantity of sulphurous hydrogen displayed itself.

We thought, at first, that this development of gas arose from the cause, that the residuum decomposed the hydrogen in the burnt flame; but the circumstance that the development commenced before this residuum was formed in any quantity, and the not inconsiderable quantity of oxide of iron which, after the operation was finished, was found deposited on the surface of the pieces of ore, render it probable that this arises from the per centage of hydrogen in the flame, and its effects on the sulphuric ores.

An increase of air in the roasting-place was not sufficient to alter this—probably because, through a single aperture, it could not sufficiently mix itself with the gas, and less likely would it be able to work on the decomposed sulphurous hydrogen in the dry form. In the beginning, we closed the generator, very imperfectly, with a stone cover; the consequence of this was, that a quantity of gas ascended, and expelled the water from the fuel. In this manner it became dry in the form, and the gas, as a consequence, contained less hydrogen. In reality, the development of the sulphurous hydrogen was less frequent, and it was easier to produce a sort of neutral state, where the stream of gas was free both from sulphurous hydrogen and sulphuric acid. Whether the humidity of the brickwork, and the great quantity of steam which this caused to produce in the stream of gas, had assisted the mutual working of the different sorts of gas, we could not determine. The sulphur produced, as previously stated, was not in a fluid form, but a fine sublimate. Whilst we operated with a cover partially opened over the generator, the sublimate was of a handsome light yellow colour, but, in the latter operation, it was of a greenish black, in consequence of the mixture of 2 per cent. of the powdered ore, which was so impalpable, that it followed the stream of gas to the last form. That, in the first instance, the sublimate was cleaner, probably arises from the cause, that the heat, or stream of gas, was weaker and less intense. That such a result was produced by the properties of the gaseous streams being charged, is highly improbable; on the other hand, there is every reason to believe that, in this particular, other sorts of mundic would have shown different results. The large per centage of lime in the Ytteroen ore, most probably, has increased, if it has not wholly produced, this phenomenon.

The largest quantity of clean sulphur we obtained, was somewhat over 11 per cent. The remaining portion of sulphur in the ore went off as sulphurous hydrogen. In order to decide the question, if such an operation could be carried on, on a large scale, in a wind-furnace, it was important to ascertain if the expansion of the ore would not impede a regular descent, or injure the brickwork, as well that the temperature, which a proper distillation of larger pieces of mundic requires, is not so high as the smelting point of the ore, so that a proper control of the furnace would be difficult.

We believe that in both these cases we have arrived at satisfactory conclusions. The ore expanded itself, but the wear and tear of the furnace was not more than could be naturally expected from the heat. The furnace was cramped at A and B, and in a length and height of 4 feet there was only 1 1/2 brick opposed to the pressure of the ore; and to this must be added, it had to support an arched roof, nearly flat. The surface of ore, under the operation, raised itself about 2 inches; but an expansion so slight in a height of 4 feet, in a wider furnace, would be of no importance. Regarding the smelting, we

think there are no grounds to apprehend any difficulties. A furnace, which was fired for 20 hours with a strong heat (about 600°), was in good order, without its surface having been perceptibly melted. There is no doubt that a wind-furnace would be much more favourable for this experiment, as every portion of the charge would successively descend into the hottest part of the furnace.

As regards the quantity of fuel used, our experiment led to no certain conclusion by which an operation in the larger scale could be judged; the drying and reheating the furnace after every charge, and the form of the furnace itself, produce less results than can be expected in a wind-furnace constantly at work. In this point, it is an important fact, that the sulphur, as a sublimate, follows the gaseous stream, by which the necessity is avoided of keeping the gaseous stream in a state of temperature above the boiling point of the sulphur when it leaves the furnace. There was no difficulty with the condensation.

The cooling process was principally performed with a cast-iron plate over the forms, D, D, in which a slight jet of water was conducted. Any establishment, conducted on a large scale, in most places, would combine with this a manufactory of vitriol; and the warmth at present lost would serve to heat the pans. The collection of the sublimate of sulphur, on a large scale, would require several large chambers. Although these might very well be constructed of wood, yet it would be cheaper and better to use other materials, and, by suction, cause the gases to pass through the water. If, as previously mentioned, there was too great a quantity of sulphurous hydrogen, such a combination by water would be inevitably necessary, in order to produce the mutual decomposition. If the sulphurous hydrogen is to be used in this stage of the process, in most cases some mechanical vehicle will be required.

Eckmann's generator appears to be an excellent apparatus. We would advise, in order to prevent the too frequent development of sulphurous hydrogen, that the fire should be directed upwards; by this the flame would contain more steam, instead of hydrogen gas; and the development of the sulphurous hydrogen would be confined to that which issues from the steam and the sulphuret of iron. It is unnecessary to remark that, with this process, there is no danger of explosion, as is to be feared by the usual sublimations, as all the apertures are filled with an excess of carbonic acid, &c.

We are of opinion, that we have given all the data necessary to carry out an establishment on a large scale; and we believe we have good reason to recommend the erection of such works. As far as we can judge, it only depends on a proper mechanical arrangement to treat mundicky ores of all sizes, and to deliver a maximum of sulphur with a minimum of fuel and wages, and to produce it in tolerably large quantities. If we calculate the proceeds of sulphur by the above process to be 15 per cent. of the weight of the ore, and the smelting charges of 100 skippond of ore, under unfavourable circumstances, to be 15 species*, freight and commission to foreign ports 30 species (which is the highest price that it can cost, to realise 100 skippond of ore), it will cost 45 species. The cost from Földal to Trondhjem is about one specie one mark; and from Trondhjem to England, or a German port, four marks per skippond. At the above cost as much flour of sulphur and bar brimstone could be sent into the market as we could hope to find a sale for; but, not to be too sanguine in our expectations, we will consider the whole sold, as raw sulphur, at 44 species. The produce of 100 skippond of ore and 15 skippond sulphur would realise 65 species; from this it is to be deducted smelting charges, carriage, and freight, 45 species; which leaves 20 species for the mining charges on 100 skippond mundicky ore: 100 skippond, or about 30 barrels, is less than three-fourths of a cubic fathom of ground, when from this about 15 per cent. is deducted for the dressed copper ore and attle. It is, therefore, clearly to be seen, that in our large mundicky lodes, even under unfavourable circumstances, the net proceeds of the sulphur will be sufficient to cover the mining charges, even where isolated shafts are used.

What can be saved in smelting, freight, and mining charges, as well as the improved manufacture from raw sulphur to flour of sulphur, or bar brimstone, must be a clear gain; where these large lodes occur on the sea coast, as in several instances, the profit would be something considerable. A certain profit, at all events, would be the copper ore obtained, and the security with which the mining operations could be conducted, in the hopes of meeting richer lodes of copper; the residuum, after the distillation, would likewise give good returns. Some idea may be formed of the importance of this subject, when it is well known that our lodes of mundie are never without being accompanied by copper. It is very seldom that the poorest lodes are explored without containing one-half per cent. of copper, and in general the average is above 1 per cent. According to Mr. Stromejer, cobalt is tolerably general in these lodes. In the iron pyrites from Svorkmo, Inset Roros, and Földal, it has been found in such quantities, that it has coloured strongly the vitriolic iron. Mr. Stromejer has fixed the percentage of this to be 0.001 of the mass. Little as this appears, there is a considerable value, well worthy of our attention, if it can be realised; and there is no doubt that such a result can be obtained, as in the sulphurous hydrogen we have the means to separate both the copper and the cobalt from their solutions, and, at the same time, to convert this otherwise useless matrix into an excellent material for vitriolic iron.

It will not be uninteresting, in order to judge of the value of the mundicky lodes, to calculate the amount of the products that could be realised, and the prices they would fetch. As we are most acquainted with the mine at Földal, we chose that. This mine has produced, at the cost of 2000 species, about 25,000 skippond of stuff. Of this quantity, about 10-16 per cent. has been thrown out, which, for the most part, contained no traces of copper. Of the remaining 89-24 per cent., which makes a quantity of 22,310 skippond, 3-7 per cent., or 825 skippond, was ore for smelting, at 8 to 4 per cent. of copper, and 21,485 for calcination (*Kjernersteking*). This gave 10 per cent., or 2148 skippond, containing 8 to 4 per cent. copper, and 58 per cent., or 11,461 skippond refuse, containing, at least, 1 per cent. copper, and about 1-1000th oxide of cobalt, both in a soluble form. This last contained, besides, about 20 per cent vitriolic iron, or 2292 skippond, and 15 per cent., or 3200 skippond sulphur. The produce of the 22,310 skippond (which is worth realisation), would give the following results:—

3300 Skippond sulphur, at 44 species.....	14,400 species.
2292 " vitriolic iron, at 8 species.....	6,876 "
57 " copper, at 60 species.....	3,420 "
2973 " copper ore calcined, at 34 per cent., equal to 1004 skippond copper, deducting 25 per cent. for smelting charges.....	4,560 "
3520 lbs. oxide of cobalt, at 4 species.....	14,080 "
Total.....	43,656 species.

This sum is equivalent to the value of 724 skippond copper; divided on the above 25,000 skippond stuff, it will give an average of 2-9 per cent. of copper.

[The necessity and importance of converting to some useful purposes the quantities of mundie lying useless in this country, having long attracted the attention of several of our scientific men, has induced us to give publicity to the above paper. The writer (M. Sinding) is a gentleman well known in the Scandinavian peninsula for his scientific attainments, and who lately remodelled the Government silver smelting-works at Königsberg. Though we cannot be so sanguine as the writer is as to the results of his trial, we think that his information may give some useful hints to those interested in the conversion of mundie, and its ulterior application.]

* A skippond is equal to about 200 lbs. avoirdupoise.
† A species is equal to about 4s. 5d.

IMPROVEMENTS IN CASTING IRON PIPES.—Among the numerous invention and improvements in the various manufactures and processes to which iron is applied, which have taken place within the past few years, one of very considerable importance, is a new method of casting every description of iron pipes, or tubes, invented and patented by Mr. J. Y. Stewart, of Glasgow (formerly of Montrose). Under the horizontal mode of casting, as usually adopted, it is impossible to avoid a greater or less degree of irregularity in the thickness of the metal, and in the internal cylindrical form of the tube. This is, of course, considerably modified, according to the skill and experience of the workman, but under no circumstances can he always be sure of the work turning out true. Mr. Stewart's plan is to cast the pipe, or other hollow cylindrical body, in a vertical position—to effect which, the mould consists of a perpendicular cylindrical iron box, of the required size, with a shaft in the centre longer than the mould, and communicating with machinery above, by which it is kept revolving, and as it revolves it gradually rises. At the bottom of this shaft is an instrument, which may be termed a "presser," or "rammer," consisting of an iron block, having inclined tabular faces of such smaller diameter than the box, as to leave the sand of the required thickness for the mould. On feeding the sand at the top of the box, it is distributed towards the sides, and the shaft and rammer, gradually revolving and rising, press it with great force against the sides of the box, leaving the mould of uniform density, and perfectly cylindrical throughout, ready for the insertion of the core. The amount of pressure given to the sand in the mould is regulated by a counterpoise weight. By this process of casting, a perfectly-formed pipe is obtained, whose inside and outside surfaces are truly concentric; and the machinery is so simple, that a boy can turn out six pipes, 6-in. diameter, per hour. There is no joint, or parting, of any kind in the mould, and, consequently, no ridges on the casting; less sand is used than by the old method, and, when cast, the tubes can be dressed at half the usual cost. Pipes, cast on this principle, present equal thicknesses of metal, uniform resistance to the pressure of fluids, and greater durability is the result. As the cost of casting on this plan is not more than by the old method, the economy in their use is very considerable; as, although the price per ton is the same, yet the linear extent of a ton, with an equal strength of metal, being much greater, the purchaser has not to pay for irregular thickness and the usual protuberances. Profs. James Miller, of the Philosophical Society, Glasgow, and P. Wilson, Head Master of the Western Collegiate Institution, have reported highly favourably of the invention.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THURSDAY.....Wharfedale Mining Company—offices, Liverpool, at Five. Amicable Society—offices, at One.
WEDNESDAY.....Promoter Life Assurance Company—offices, at half-past One. National Bank of Ireland—offices, at One.
THURSDAY.....Wharfedale Mining Company—at the mine, at One. Wharfedale Mining Company—offices, at Two. Brighton Gas-Light and Coke Company—offices, at Twelve. West Cornwall Railway—King's Arms Hotel, Westminster.
FRIDAY.....London, Brighton, and South Coast Railway—London Tavern, Twelve. Tontine Life Assurance Company—offices, at One. Crown Life Assurance Company—offices, at Twelve.
SATURDAY.....Birmingham, Wolverhampton, and Dudley Railway—Doe's Hotel, Birmingham, at half-past Two.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

THE PROVINCIAL BANK OF IRELAND.

The annual meeting of proprietors was held on Thursday, the 18th inst., at the offices, Old Broad-street. There was a full attendance of proprietors—Sir JOHN YOUNG, Bart., M.P., was on the motion of OLIVER FARRER, Esq., seconded by MOSES MONTEFIORE, Bart., voted to the chair.

The advertisement by which the meeting had been convened having been read by the SECRETARY, the CHAIRMAN said, he had great satisfaction in taking the chair on this occasion, and he was glad to see so full an attendance of proprietors. The first business of the meeting, after the election of a chairman, was to elect four directors, in the place of those who went out of office by rotation, according to the terms of the Deed of Settlement. The gentlemen going out of office in rotation this year, were Sir Robert Campbell, Bart., Oliver Farrer, Samuel Eustace Magan, and Joseph Mayer Montefiore, Esqs. They had all been duly proposed as candidates for re-election, and their names had been put up in the office accordingly, and no other candidates had been proposed.—The re-election of the above gentlemen was, therefore, proposed and unanimously carried.

The CHAIRMAN said, the report which the directors had drawn up of the business of the bank for the last year, would now be submitted to the proprietors; and, with their permission, he would request the secretary to read it.

The report was then read. It was as follows:—
In conformity with their usual practice, before submitting to the proprietors a statement of the result of the bank's operations for the past year, the directors consider it proper to notice, very briefly, some of those circumstances, affecting the prosperity of the country, which must always have a material influence on the business and general interests of banking institutions. The failure of the potato crop in the years 1846 and 1847, which was adverted to by the directors in former reports, has been productive of serious loss, and has tended greatly to disorganise and embarrass the trade and business of the country, affecting more immediately the owners and occupiers of land, but extending also to traders and others depending upon the prosperity of the agricultural classes. A considerable time must, it is feared, elapse, before the effects of that calamity can be overcome. It is satisfactory, however, to be able to state, that the harvest of last year, was, on the whole, a productive one; and, being early, it was secured during most propitious weather, in excellent condition, without loss, and at moderate expense. The supply of food in the country has been therefore abundant; but as the prices of grain have been comparatively low, and the expenses of cultivation, including the public burdens upon land, have considerably increased, the circumstances of the farmers have not, it is believed, generally improved. The flax crop of last year was a good one, and the produce of superior quality. The linen manufacture in the north of Ireland, to the importance and growing prosperity of which the directors have, on former occasions, referred with peculiar pleasure, has, however, partaken of the depression so universal in other departments of trade. In the report of last year allusion was made to the large importations and the high prices of grain; and on this occasion the directors refer with regret to the disastrous consequences which resulted from the extended operations in that trade, into which so many persons were induced to embark. Numerous extensive failures took place in England, and in Ireland and Scotland, in and subsequent to the month of August last year; and the pressure in the commercial world was altogether, for a time, of so serious and distressing a character as to have been considered without parallel.

Under such circumstances, the proprietors will not be surprised to hear that, notwithstanding all the precautions which could be taken, losses to a greater extent than ordinary have been sustained; but these, it is satisfactory to add, have been all provided for within the year; and, though there has been a diminution of general business, it is a subject of gratification to the directors, to have it in their power to present to this meeting a statement of the position of the accounts of the bank, which, they trust, will afford satisfaction to the proprietors. To that statement the attention of the meeting is now requested:—

The account submitted to the last yearly general meeting, in May, 1847, showed the amount of rest, or undivided profits, at March 27, 1847, to be—£126,196 12 1
Out of which there was paid to the proprietors a bonus of 4 per cent., at Midsummer, 1847, amounting to—21,600 0 0

Leaving a balance of—£104,596 12 1
And there has been further deducted the amount of two half-yearly dividends, paid to the proprietors as follows:—viz.:
At Christmas, 1847—£21,600
At Midsummer, 1847—21,600—43,200 0 0

Leaving a balance of the rest of last year amounting to—£81,396 12 1
To which there has since been added the amount of net profits for the year ending the 25th, being the last Saturday of March, 1848, after deducting the property tax and all expenses, and providing for all bad and doubtful debts—46,108 18 10

Making the rest, or amount of undivided profits, at March 25, 1848—£127,505 10 11

The proprietors will observe, that, after providing for the losses of the past year, and for the ordinary dividends on the capital stock of the bank, an addition has been made to the rest; and the directors have now to state, that it is their intention to pay, as usual, in July next, a dividend of 4 per cent. for the half-year ending at Midsummer—being at the rate of 8 per cent. per annum, or 1s. on each 100l. share, and 8s. on each 100s. share; and they purpose, also, as heretofore, to pay the property tax for the proprietors. The report was exceedingly well received.

ARTHUR T. CORFE, Esq., of Salisbury, begged to move that the report be received and adopted, and printed for circulation among the proprietors.

In doing so, he must take the opportunity of expressing his gratification, and not for the first or second time, at the admirable manner in which the affairs of the bank had been managed. (Cheers.) The best thanks of the proprietors were eminently due to the directors for having done so much during a year of such depression in all monetary transactions, and in which so painful a struggle had to be made by all persons connected with the mercantile world. He must repeat, it was a subject of congratulation that the establishment should, under the state of things to which he alluded, have been anything like so successful as it had been. (Cheers.)

Capt. ALFRED DAVIS, of Beauvoir, county Cork, had much pleasure in seconding the resolution.

The CHAIRMAN said that, with respect to what had fallen from Mr. Corfe, it was a matter of great congratulation to the directors and proprietors that, under all the trying circumstances of the last year, the bank had not only escaped without loss, but had realised a considerable profit; he would say, that on this subject he thought the directors had certainly some reason to claim credit, and also that they had reason to claim credit for the good management of the very efficient officers by whom their exertions had been so ably seconded. But, above all, he thought they had to thank themselves for the principle on which the business of the Provincial Bank of Ireland had been conducted, which was that of looking rather to sound and safe business than to large profits, with a greater degree of risk. He thought the bank had done as much good for the country in which the establishment existed as to itself, by introducing and adhering to sound and good principles of banking, which had stood the test of even the most adverse times. (Hear, hear.) The allusion which had been made in the directors' report, as to the condition of the agricultural classes and the depressed state of trade in Ireland, was, he thought, too true. The loss by the failures of the potato crop could not be estimated under a great many millions. This had, no doubt, injuriously affected every branch of commerce in Ireland, and some years would probably elapse before the entirely recovered from the consequences; but, having some knowledge of Ireland, he did not despair. (Hear and cheers.) He thought good would come out of evil; the agriculture of Ireland was rapidly improving. More scientific principles were gradually prevailing—a greater amount of capital was being applied to the improvement of the soil, and in a few years they would find all classes connected with the land extricating themselves from the difficulties alluded to. As to the effects of the Poor Law in Ireland, he would observe, that though great difficulties had been experienced in putting it in operation, and the new taxation it imposed pressed severely on many, yet he considered that its tendency would be to raise the social condition of the people of Ireland; and those who complained of the burdens which it had imposed, which were, no doubt, heavy, would find in due time a return in the more orderly and industrious habits of the people, who, being better housed, better fed, and better clad than they had been, would naturally labour more steadily and diligently than they could have been expected to do under the depressing circumstances of their former position. (Hear, hear.) And as they did so the resources of the country must augment; and from the operation of this measure, however trying at first, as well as of other causes now obviously in force, every class would derive benefit and ease, and order and tranquillity eventually take the place of suffering and discontent.

The resolution that the report be adopted, printed, and circulated among the proprietors, was then put, and carried unanimously.

Capt. DAVIS then proposed, that the cordial thanks of the meeting were due to the board of directors for their constant attention to the interests of the bank; and also to the chairman for his conduct in the chair.—W. LYNES, Esq., seconded the motion, which was carried unanimously.

The CHAIRMAN, on the part of his brother directors and himself, returned thanks.—Capt. T. PORTER, R.N., had the pleasure of moving a vote of thanks to Mr. Hewat and the other officers of the London establishment, and to Mr. Murray and the other officers in Ireland, as well as to the local directors, for their efficient and valuable services during the past year. He thought it was universally felt by banking persons that the Provincial Bank of Ireland manufactured men of business to establish and direct banks. (Hear.) Directors

might and did perform much for such institutions; but they must trust in a great measure to the ability and disinterestedness of their secretary and other officers. (Hear.) He thought nothing could exceed the disinterestedness and skill that had been displayed by the officers of this establishment. (Cheers.)—The motion having been seconded, the CHAIRMAN said, he had great pleasure in putting the resolution to the meeting.—The resolution was carried unanimously.—Mr. HEWAT returned thanks, and the meeting broke up.

STOCK EXCHANGE—RAILWAY SHARE TRANSACTIONS.

COURT OF COMMON PLEAS, MAY 18.

SAYES J. LANGFORD.—This case is one of importance, not only with respect to the legality, or otherwise, of the transactions which gave rise to the action, but as being opposed to the rule generally, if not heretofore universally, observed, with respect to operations on the Stock Exchange. Mr. Cockburn, Q.C., Mr. Grey, and Mr. Snow, appeared for the plaintiff, and Mr. Serjeant Byles, and Mr. Jones, for the defendant. From the statement of counsel, and the evidence adduced, it appears that the plaintiff had employed the defendant in his capacity as a stockbroker, in some time transactions on the Stock Exchange, in consols for account, and as security, to meet any differences which might be against him (the plaintiff) on the settling day, depositing certain scrip shares in the South Yorkshire, Lancaster, and Goole Railway, to cover such amount. The settling day, it appears, was on the 28th of August last—the defendant having, in anticipation of meeting the differences which were against the plaintiff, made a sale of the shares in question, on the 27th of that month, alleging that he had given notice to the plaintiff on the 25th, or two days previous, of his intention to sell the shares to meet the balance due to him on the difference, an account of which he, at the time, furnished to the plaintiff; while, on the other hand, the plaintiff proved the contract under which the shares were deposited with the defendant, and a demand to have them returned to him, made on the 24th of August, which was met by a refusal on the part of the defendant. The relative prices at which the shares were in the market—at 100s. on the 24th of August, 30s. per share; 28th of August, 17s. 6d.; and 5th of February last, 17s. 6d. (another call having been then paid)—was also proved. It appeared from the evidence that the defendant was not a sworn broker; and that, although, according to custom, a broker had a right to sell any security deposited with him, so as to reimburse himself, yet he was not at liberty so to do without having given reasonable notice of such intention. This, the plaintiff contended, had not been done; and, furthermore, contended that the defendant had only a lien on the shares, and had no power to sell them, or apply the proceeds arising therefrom to his own use, on the part of the defendant. It was shown that the account was closed on the 25th of August, although the settling day was on the 28th, and that the market evidenced every appearance of a falling market; and evidence was given that the notice of the intended sale of the shares was given to the plaintiff on the day on which the sale was effected, which did not, however, appear very clear.

The learned JUDGE, in summing up the case, said there was no fact before the jury—the defendant was not a sworn broker; and, under the 7th Geo. II. cap. 8, the contract was illegal, as a gambling transaction. The defendant had received these shares as a security for differences on a sale of consols. Such a transaction was held to be illegal under the above statute, in the case of *Child v. Morley* (5 Fost. Rep. p. 610). If the transactions were not legal, the defendant would not be in the situation to claim a lien on the shares deposited for the differences said to have arisen.

At the request of the counsel for the plaintiff, the question, as to reasonable notice having been given to the plaintiff of the intended sale, was left to the jury, and

The learned JUDGE directed the jury to find a verdict for the plaintiff, for the highest amount for which it was proved the shares could have been sold—namely, for 81l. 12s.

The jury found accordingly; and, as to the reasonable notice, they gave their verdict for the defendant.

Upon which the LORD CHIEF JUSTICE gave the defendant leave to enter a verdict for the defendant, or a nonsuit, if the Court, in *hanc*, should be of opinion that this was a legal transaction under the Act of Parliament.

JOINT-STOCK PARTNERSHIPS.

We have several times had occasion to direct attention to the imperfect state of the law as regards joint-stock partnerships; and we are glad, therefore, to observe that a bill has been brought into the House of Commons to amend some of the anomalies which we have pointed out. The bill, which is entitled "An Act to amend the law relating to joint-stock partnerships," applies only to small firms. It provides ample remedies for any difficulties which might arise in a partnership consisting of three or four partners. It effectually provides against injustice, from one to another, and against any injury which might be inflicted on their creditors. But the very provisions which are most equitable when applied to a partnership of three or four persons, becomes a source of positive injustice, and an impediment in equity, when carried out in the case of a large company. For instance, it has always been found a good rule of law to prohibit actions being brought by partners amongst themselves; and hence the Court of Chancery always interferes in any case of dispute, and, after deciding on the respective claims of the partners, dissolves the partnership. But this rule, at the very moment of joint-stock companies on an extended scale, was found to be so fatal to their continuance, that an Act was specially introduced for the purpose of excluding joint-stock banks from its operation. It appeared that a customer of a bank, being also a small shareholder, had become indebted to the bank for advances; and, when sued for the amount, pleaded that he was a partner, and that, if the claim against him were proceeded with, the Court of Chancery must take cognisance of it, and dissolve the company! The plea was a good one; for the law of partnership applied as well to a company consisting of 1000 members as to a firm of three or four; and in this case, as in others, the Legislature had to interfere to prevent a gross injustice being committed under sanction of the law.

These difficulties arose from want of a proper codification of the law for regulating the proceedings of large companies. The attempt to govern them by the ordinary law of partnership has proved unsuccessful on many occasions; but the Legislature had been content to make provisions for the more glaring defects of the old system as they presented themselves, leaving joint-stock companies generally to overcome the deficiencies of the law in the best manner they could—thus encouraging evasions of the law, rather than dissolving the system to which it was to be applied.

One of the principal evils of the present system has been the difficulty which a joint-stock company experienced in dissolving itself, and making its several members contribute ratably to the losses, when the amount rendered it inexpedient or impossible for the concern to be carried on. We believe that the only effectual mode of doing this was by obtaining a special Act of Parliament for the purpose; and the solvent shareholders had to bear all the heavy expenses consequent on obtaining an Act, in addition to the debts of the company. The recent stoppage of several joint-stock banks, and the probable dissolution of some of them, have brought the subject prominently under notice; and, as we are afraid that many of our readers may be personally interested in the matter, we think it may be useful to direct attention to the present state of the law as regards the liabilities of shareholders, and of parties who have been shareholders in joint-stock banks, as we find the point discussed in the last number of the *Bankers' Magazine*.

"Joint-stock banks formed before May, 1844, are regulated by the 7th Geo. IV., c. 46, which enables them to appoint a public officer, to sue and be sued, on behalf of the company. By suing the public officer, the creditor virtually sues the entire firm, and a judgment procured against him is a judgment against the entire firm, and may be enforced against each member of it; and for that purpose the Act requires the names of all the partners to be registered. (*Esparis Wood, 1 Montague, D. and De G's reports, 92, 98.*) It was once held, that the creditor of a joint-stock bank might sue out a fiat in bankruptcy against a shareholder without taking any preliminary proceedings against the public officer; but this point has been further considered, and the Court of Exchequer has held, that a creditor of a joint-stock bank cannot sue an individual member of the company for his debt, but must proceed against the public officer, where it appears there is a public officer, and that he is within the jurisdiction. (*Stewart v. Greaves, 5 Macdonald and Welsby, 711.*) A *mandamus* will lie to appoint a public officer (*Edwards v. Buchanan, 3 Barnewell and Adolphus, 788.*) A bill was filed against A as the registered public officer of the Yorkshire Banking Company. A, by his answer, stated, that he had ceased to be such public officer, and that B was then the public officer of the company. It was held to be unnecessary to bring the new public officer before the court. (*Butchart v. Dresser, 16 Law Journal (Chancery) Reports, 198.*)"

The judgment having been obtained against the public officer, the next step is to enforce it against the shareholders; and the 13th section of the before-mentioned statute states their liabilities, and the mode of proceeding against them. We, therefore, insert it at length:

"And be it further enacted, that the execution upon any judgment in any action obtained against any public officer for the time being of any such corporation, or copartnership, carrying on the business of banking under the provisions of this Act, whether as plaintiff or defendant, may be issued against any member or members for the time being of such corporation or copartnership; and that, in case any such execution against any member or members for the time being of any such corporation or copartnership shall be issued, the creditor or creditors of the amount of such judgment, it shall be lawful for the party or parties so having obtained judgment against such public officer for the time being, to issue execution against any person or persons who was or were a member or members of such corporation or copartnership at the time when the contract or contracts, or engagement or engagements, in which such judgment may have been obtained, was or were entered into, or became a member at any time before such contract or engagements were executed, or was a member at the time of the judgment obtained; provided always, that no such execution shall be issued without leave first granted, on motion, in open court, by the court in which such judgment was obtained, and which motion shall be made on notice to the person or persons sought to be charged, nor after the expiration of three years next after any such person or persons shall have ceased to be a member or members of such corporation or copartnership."

"It has been held, that a creditor is bound to use all reasonable means to obtain satisfaction of the judgment from the present members of the company, which he must do before he can attempt to proceed against those who have been members, but have ceased to be so any longer; and it seems that, if a retired partner can show that there are any solvent present partners, it will be an answer to an application to issue execution against him. (*Hardley v. Law, 12 Adolphus and Ellis's reports, 802; Field v. Mackenzie, 11 Jurist, 714.*) A person who appears to be a partner on the books of the copartnership, and whose name is registered as such, cannot discharge himself of his liability to creditors by showing that the transfer to him was informally executed. (*Taylor v. Hughes, 2 Jones and Latimer's reports, 24.*)"

Such is the existing condition of the law, and it operates most unjustly. As far as the public are concerned, as creditors of the bank, it gives them the opportunity of selecting the wealthiest shareholders, and suing them individually for the whole debts of the concern; but it provides no remedy for the equal distribution of the liabilities of the company, or for its dissolution on equitable principles. The bill now brought into the House of Commons by Mr. M. Gibson appears to be intended to meet this obvious injustice. It purports to confer on the Masters in Chancery powers similar to those now possessed by the Commissioners of Bankruptcy, giving them judicial authority to wind up the affairs of insolvent companies, with the power of appointing official assignees in whom the property of such companies shall be vested, so as to avoid the present necessary proceedings in the Court of Chancery, and the enormous expense of obtaining an Act of Parliament to dissolve the company and wind up its affairs.—*Irish Railway Gazette.*

MINERAL PRODUCE OF AUSTRIA.—The latest published Government accounts give the following as the mineral produce of Austria:—Gold, 35 cwts.; silver, 547 cwts.; mercury, 166½ tons; iron, 148,379 tons; copper, 2703 tons; lead, 6666 tons; litharge, 1299 tons; zinc, 227 tons; calcamine, 908 tons; tin, 49 tons; antimony, 281 tons; cobalt, 182 tons; manganese, 64 tons; arsenic, 50 tons; plumbago, 1827 tons; also, alum, 1494 tons; sulphate of iron, 6354 tons; sulphate of copper, 288 tons; sulphur, 1259 tons; coal, 624 tons.

A DISEASED ELBOW CURED BY HOLLOWAY'S OINTMENT AND PILLS.—Mrs. Dunham, of Strubby, near Alford, was dreadfully afflicted with an enlargement of the elbow joint; for several months she lost the use of her arm, during which period she was under the treatment of the faculty in Lincoln, Nottingham, and other places, but obtained no relief; and from the intense pain she constantly endured, it was decided that nothing but amputation or death could relieve her sufferings. In this state Holloway's ointment and pills were resorted to, and these truly valuable medicines effected permanent cure, and restored the complete use of her arm. Mr. Hurton, bookseller, Louth, will testify to this.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

HEALY FIELD LEAD AND SILVER MINES. In the parish of LANCHESTER, in the county of Durham.—FOR SALE, BY PRIVATE CONTRACT, the above mentioned MINES, together with all the MACHINERY and MATERIALS thereon.—These mines, which are held by lease from the Dean and Chapter of Durham, are now, and have been for many years past, in full course of working, and the produce has been considerable. The ore yielding a high per centage of lead, and from 20 to 25 ounces of silver to the ton. The mines are well stocked with water, and all machinery necessary for extensive operations, and the prospects for deeper and more extended trials are most encouraging.

The agent on the mines, Mr. Wm. Forster, is instructed to render every facility and information to parties visiting the mines; and for further information apply to Mr. Eddy, of Grassington, near Skipton, in the West Riding of Yorkshire, who is authorised to treat for the same, and by whom satisfactory reasons will be given for the retirement of the present proprietors.—Dated May 18, 1848.

TO IRONMASTERS.—BRADLEY IRON-WORKS. FOR SALE, BY PRIVATE CONTRACT, the FORGE and ROLLING and SLITTING-MILL, at BRADLEY, near Bilton, in the county of Stafford, consisting of an excellent FORGE and MILL, lately erected; the former is worked by a steam-engine, of 32-horse power, and the latter by one of 80-horse power, with suitable and commodious OFFICES, WAREHOUSES, STABLING, and other conveniences.

The forge has a double-bank ring, with two hammers; and the mill is capable, in its present state, of rolling and rolling every description of manufactured or malleable iron. The machinery is constructed upon the newest and most approved principle, and the whole is in perfect order and good working condition.

With the works, will be SOLD a commodious WHARF and BASIN, on the banks of the Birmingham Canal; also, TWO DWELLING-HOUSES, suitable for the residence of managers.

The whole is at present held by Messrs. G. B. Thorneycroft and Co., under an agreement for a lease, which will expire at Midsummer, 1848, when possession may be had. The tenants will show the works; and further particulars may be had from Mr. John Dunning, of Bradley; or at the offices of John Finchetts Maddock, Esq., of Chester; or of Messrs. Wagstaff, Marsh, and Barratt, solicitors, Warrington.

TO BE SOLD, OR LET, a valuable COAL MINE, in the township of GREAT HARWOOD, in the county of Lancaster. The mine has been recently proved, and found to be 2 feet 3 inches in thickness, and of excellent quality; it is commonly called, or known, by the name of the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots.

The property is situated between the towns of Blackburn and Clitheroe, and is intersected by a branch of the East Lancashire Railway.

A section of the borings may be seen, by applying to Mr. Boosie, Rufford-hall, Ormskirk; or to Mr. White, coal viewer, Charnock Richard, Chorley—to either of whom proposals may be sent.

IMPORTANT TO CAPITALISTS.—MINERAL FIELD AND VALUABLE FREEHOLD ESTATE, in NORTHUMBERLAND, TO BE DISPOSED OF.—The COAL, LIMESTONE, and IRONSTONE, in the MANOR of HALTWHISTLE, and county of Northumberland, are hereby OFFERED TO BE DISPOSED OF, for the unexpired term of 34 years, with immediate possession.

This valuable royalty is very extensive, comprising upwards of 2500 acres—the greater part of which contains the aforesaid minerals. The Newcastle and Carlisle Railway (with a branch to Alston, now in progress, and commencing at the Haltwhistle Station, in the said manor) passes through the manor, and affords a ready and easy access to the shipping ports of Carlisle and Maryport, as well as to the important land trade of Carlisle; also to Penrith, Kendal, Lockerbie, Ecclefechan, and the south-west of Scotland, by means of the Lancaster and Caledonian Railways.

The COALFIELD consists of upwards of 1500 acres of coal—nearly the whole of which is unwrought. The seam of coal, which is now being worked, at the Fell End Colliery, is nearly 4 feet thick—is a very good gas and coking coal, and well adapted for general use, being almost free from sulphur. From the peculiarly favourable formation of the surface, about 600 acres of coal may be won and drained, by means of a level, at a very trifling cost.

The IRONSTONE may be said to be almost inexhaustible, and has been proved to be of very superior quality, and will extend over nearly the whole of the manor. There is also reason to expect, that the black-band ironstone will prevail over the royalty, of a similar quality to that worked at Chesterwood, in the same range of strata.

The LIMESTONE comprises a breast of the "thick limestone," upwards of 1½ mile in length; and, from this ridge, or bearing, may be worked and burnt at a low rate. There are three kilns built, two of which are now in operation.

The FREEHOLD ESTATE, called CROSS-BANK FARM, consists of nearly 100 acres of arable, meadow, and recently enclosed land, and was purchased by the present lessee, to secure the important desideratum of a free way—leave to join the Newcastle and Carlisle Railway, being the only part in the manor where this could be accomplished.

The whole will be found to be well worth the attention of capitalists, being one of the most valuable and extensive mineral fields in the north of England; and, from the great and increased demand for coke and coal on the west coast for land and shipping, this royalty would realise, when opened out, the most sanguine expectations of mining adventurers embarking in the speculation.

For further particulars, apply to John Fawcett, Esq., Petteril Bank, Carlisle; and to Mr. R. H. Maden, Halifax, who has the plans and sections, and will show the premises.—Haltwhistle, May 3, 1848.

IMPORTANT TO CAPITALISTS.—TO BE SOLD, an excellent SLATE and SLAB QUARRY.—VARIEGATED MARBLE and HONE QUARRY.—COPPER and LEAD MINES—all situated on the same property, within a short distance of the shipping harbour of Portmadoc, Carnarvonshire.

The above works are situated on a farm called Crossw-uchaf, in the parish of Llanfrothen, in the county of Merioneth, about seven miles distant from the shipping harbour of Portmadoc, and about two and a half from the railway of the Festiniog Slate Quarries to the port. They are near the celebrated quarries of Festiniog, which are well known throughout Europe; and it hath been ascertained, by competent judges, that this slate vein is a continuation of the very productive vein worked by the Welsh Slate Company at that place, of which Lord Pemberton and other noblemen are partners, which send about 500 tons per week of fine slate to the market. The vein is about 70 yards wide, and very advantageous for working, being situated on the brow of a hill, and the rubbish thrown down, where there is a depositary of 200 or 300 yards deep for it, without causing any large trespass. The quality is good, splits well, and is of a beautiful blue colour.—Slates of the largest size, and of the most perfect texture, and of large dimensions. Thousands of fine slates, worked to sizes, and beautiful slabs, are now ready on the bank.

The proprietor has ascertained most positively that no other slate quarries in Wales can produce such beautiful specimens from so near the surface, and where so little money has been expended.

The MARBLE and HONE adjoins the slate quarry, and some splendid specimens of variegated marble and hone have been already made from it.

The COPPER and LEAD MINES are about a quarter of a mile from the slate quarry, and the metals are of superior quality, and likely to become very productive.

There is the greatest facility for conducting operations at all the works, which may be done with little expense, as few or no machinery will be required. A sawing and planing engine may be worked by water, just below the quarry.

Satisfactory reasons will be given why it is sold.

For further particulars, and to treat for the same, apply (postage paid) to Mr. Richard Jones, printer and auctioneer, Doigly, North Wales, where specimens of the slates, marble, hone, copper, and lead, may be seen.

TO PROPRIETORS OF STEAM-ENGINES, STEAM-BOAT COMPANIES, &c.—The SAVING OF FUEL being at this moment an object of vast importance, M. REMOND, of 37, GREAT CHARLES-STREET, BIRMINGHAM, is ready to TREAT, on reasonable terms, with the OWNERS OF STEAM-ENGINES for the application of his PATENTED IMPROVEMENTS, by which a great amount of fuel is economised, while, at the same time, more power is secured. The nature and extent of these improvements (which may be adapted at a comparatively small cost to any engine) were fully explained, and spoken of in the most favourable terms, in the *Midland Counties Herald* of the 30th of March—also in the *Mining Journal* of the 1st April—and they may be ascertained by a reference to Messrs. Beale, of Bradford-street, Birmingham, by whom they have been adopted with the most decided success.

STEAM TO INDIA AND CHINA, via EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th; and from Suez on or about the 10th of every month.

For rates of passage-money, plans of the steamers, and to secure passages, apply at the company's offices, No. 122, Leadenhall-street, London.

LAND DRAINAGE.—Mr. W. HUGHES, Civil Engineer, begs to announce, that he undertakes the INSPECTION of ESTATES to be DRAINED, the SETTING OUT of DRAINS, the RECLAMATION of LAND, and the GENERAL SUPERINTENDENCE of WORK, at a FIXED CHARGE PER ACRE, according to the extent of land.—Full particulars may be had on application to Mr. W. Hughes, C.E., at the office of the *Mining Journal*, 26, Fleet-street, London.

UNDER BRITISH AND FOREIGN LETTERS PATENT.

TO CAPITALISTS.—FIRST CLASS INVESTMENT.—SHARES TO BE DISPOSED OF, in valuable patents, recently sealed, and in works connected therewith. The produce of soft stone, chalk, and sand quarries, is increased and rendered impervious to wet, from vermin, &c.; also plaster of Paris, carton-roof sheeting, &c., for all building and other purposes.

Further particulars, and various specimens to be seen, at Messrs. Hutchison, Wilford, and Co., the patentees, East Temple Chambers, 2, Whitefriars-street, Fleet-st., London.

BANWEN IRON COMPANY.—Established 1846—for WORKING the IRON MINES on the BANWEN ESTATE, in the neighbourhood of SWANSEA, Glamorganshire. The mines are now in work, and further CAPITAL being REQUIRED for erecting additional FURNACES, a portion of the reserved shares of £5 each may now be had, on application at the offices of the company. A deposit of £2 per share to be paid down, and the remainder by two instalments, at intervals of two months. This company offers peculiar advantages, and the profits are estimated to return a dividend of 50 per cent.

Offices, 23, Threadneedle-street.

CAMERON'S COALBROOK STEAM COAL AND SWANSEA AND LOUGHOR RAILWAY COMPANY. Registered and Incorporated.

The directors are ready to RECEIVE TENDERS for LOANS, on bond, mortgage, or other securities of the company, in sums of £500 and upwards—repayable in three, five, or seven years, bearing interest at 5 per cent. per annum, payable half-yearly in London, or any of the principal towns in England or Scotland.

By order, A. C. HOWDEN, Secretary. Company's Offices, 2, Moorgate-street, London, May 18, 1848.

CLARIDGE'S PATENT ASPHALTE OF SEYSEL COMPANY.—At the Annual Meeting of the proprietors of this company, held on the 4th inst., the report having been read, was adopted, by which a DIVIDEND of 7½ per cent. was proposed, PAYABLE on and after Wednesday next, the 10th inst.; and the thanks of the meeting to the directors and secretary, for their great exertions on behalf of the company, was unanimously voted.

The dividend will be payable at the offices of the company, Stangate, near Westminster-bridge, London. It will be requisite that the shares be left at the office day previous, May 5, 1848. J. FARRELL, Secretary.

CRAIG DDU SLATE COMPANY.—Notice is hereby given, that the 31st GENERAL MEETING of the shareholders will be HELD at the offices of the company, 35, Moorgate-street, London, on Tuesday, the 30th of May next, at One o'clock precisely, for the purpose of receiving the report of the directors, and of electing two directors, in the place of Mr. Henry Morris, resigned, and William Wright Manfield, Esq., who retires by rotation, but who is eligible for re-election.

London, May 12, 1848. J. MORGAN, Chairman.

CRAIG DDU SLATE COMPANY.—Notice is hereby given, that no SHAREHOLDER will be ELIGIBLE for ELECTION as DIRECTOR of this company, unless he shall hold at least TEN SHARES, and shall have left Notice in writing of his intention to become a candidate for such office 10 clear days before the general meeting.

J. MORGAN, Chairman.

CALEDONIAN RAILWAY COMPANY.—LOANS ON DEBENTURES.—TENDERS OF LOANS ON DEBENTURE BONDS are now RECEIVED in sums of not less than £200, for any number of years not exceeding five. Interest to be at the rate of 5 per cent. per annum, payable half-yearly, in London, Edinburgh, Glasgow, or in any country bank.

Tenders to be addressed to this office, giving full name and address of lender.—Parties may also communicate with Messrs. Foster and Braithwaite, 68, Old Broad-street, London. By order, D. RANKINE, Treasurer. Caledonian Railway Office, Edinburgh, Feb. 25, 1848.

EASTERN ARCHIPELAGO COMPANY.—Incorporated by ROYAL CHARTER. Capital £200,000, in 2000 shares, of £100 each.

CHAIRMAN.—JOHN MACGREGOR, Esq., M.P. BANKERS.—Messrs. Glyn and Co.

The objects of this company are to carry on MINING, AGRICULTURAL, and TRADING OPERATIONS in the EASTERN ARCHIPELAGO, and the ACQUIRING and DISPOSING OF LANDS in the island of LABUAN and the parts adjacent (BORNEO)—a region abounding in mineral wealth—most fertile in all the valuable tropical productions, and very happily situated for the purposes of commerce. The working of the coal mines in those districts, so highly important to the promotion and extension of efficient and economical steam communication with our eastern possessions, will form a main feature in this company's operations.

By virtue of the company's charter, each shareholder's responsibility is limited to the amount of his subscription, and the capital may be increased to £400,000, and further increased, with the consent of the Board of Trade.

A detailed prospectus, with a form of application for shares, and an inspection of a copy of the charter, may be obtained at Messrs. GLEDSTANES & CO'S, 3, White Lion-court, Cornhill.

NATIONAL DISINFECTED AND DRY MANURE COMPANY.—OFFICES, 7, BANK CHAMBERS, LOTHBURY.

Notice is hereby given, that the DEED OF SETTLEMENT of this company now LIES ready FOR SIGNATURE, at the OFFICES, as above, where it will remain until further notice.—May 10, 1848. JAMES HORACE KENWORTHY, Secy.

LONDON DRY MINING COMPANY OF NOVA SCOTIA.—Capital £30,000, in 2000 shares, of £10 each.

It is provided that 21 days' Notice be given of each call, and that no call exceed 20 per cent., and that successive calls be not made at less than six months, and that the aggregate amount of calls, made in any one year, do not exceed 40 per cent.

Incorporated by Act of the Provincial Parliament.

The following directors have been named in the Act (together with other persons) as constituting the corporation; and they are to continue in office until superseded, or confirmed, by a vote of the London shareholders—viz.:

The Hon. W. A. BLACK, Members of the Legislative Council. The Hon. J. E. FAIRBANKS, The Hon. ALEX. KEITH, J. W. JOHNSTON, Esq., Advocate-General.

This company has been formed for the purpose of WORKING A MINE, recently discovered, of IRON ORE, of superior quality and richness, situated in the province of Nova Scotia, about 70 miles from Halifax, and about seven miles from a good shipping port, in the Bay of Fundy.

This extraordinary deposit of specular iron ore has been surveyed by Dr. Gesner and J. W. Dawson, Esq., provincial geologists. Extracts from their reports are appended to the prospectus, and other unquestionable references.

"To John Ross, Esq., of Truro, Nova Scotia. "DEAR SIR,—It gives me great pleasure, in reply to your request, to express the high opinion I entertain of the talents, acquirements, sagacity, and high qualifications of Mr. J. W. Dawson, of Pictou, as a mineral surveyor and geologist, of which I had an opportunity of judging during an examination, which we made together, of several parts of Nova Scotia, and, among others, the district of the Folly River—to the valuable ores of which you are now directing public attention.

"I may further add, that Mr. Dawson's name is now well known to the Geological Society of London by several Memoirs on the Geology of Nova Scotia, accompanied by maps and sections, published in their *Proceedings* and *Quarterly Journal*.

"I have the honour to be, dear Sir, yours, &c." (Signed) "CHARLES LYELL. Application for shares will be received by Mr. Charles Walton, of the firm of Charles Walton and Sons, Newman's-court, 73, Cornhill.

One-third of the capital stock of the company is reserved for the colonial shareholders—the remaining 1353 shares are offered to capitalists in London, until the 20th inst.

Printed forms of application may be obtained with the prospectuses, where the Act may be seen.—Prospectuses may be obtained, and specimen of the iron ore, by applying to Messrs. Royston and Brown, 40, Old Broad-street; Messrs. Charles Watson and Sons, 73, Cornhill; or on application to Mr. Henry English, 25, Fleet-street.—Prospectuses can also be had at the office of the *Mining Journal*, 26, Fleet-street, London.

GOLDSOPE SILVER AND COPPER MINE, in the VALE OF NEWLANDS, KESWICK, CUMBERLAND. Capital £10,240, in 2048 shares, of £5 each.—Deposit £2 per share.

ON THE COST-BOOK SYSTEM. OFFICES.—ROYAL BRITISH AND FOREIGN MINING OFFICES, 140, STRAND, LONDON.

This ancient COPPER MINE is now reworking with great advantage, and only 875 shares remain for the public, for which applications should be addressed to the above offices, where detailed prospectuses, reports, and plans, with specimens of the mine, may be seen. Further information may be had on applying to the manager, Captain W. Clemence, on the mine.

CORNWALL NEW MINING COMPANY. Capital £100,000, divided into 20,000 shares, of £5 each.

PATENT CAST-IRON PIPE MANUFACTORY, CHARLES-STREET, ST. HOLLOWS. D. Y. STEWART & CO. beg respectfully to inform Merchants, Engineers, and Directors of Gas and Water Companies, that, having completed the erection of their works for the exclusive MANUFACTURE OF CAST-IRON PIPES, are now prepared to enter into CONTRACTS for the SUPPLY of that ARTICLE.

D. Y. S. & CO., having no connection with any smelting-furnaces, can assure parties, that their pipes will be made from the best mixtures of pig-iron; and Stewart's Patent enabling them to make perfect moulds without any JOINT or PARTING, and the casting being performed while the mould is in a vertical position, ensure an equality of thickness of metal hitherto unattainable.—Glasgow, May, 1848.

THE PATENT OFFICE AND DESIGNS REGISTRY, No. 210, STRAND, LONDON.

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION OF INVENTIONS and DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

BRITISH AND FOREIGN PATENT NAIL COMPANY. (Provisionally Registered 7 and 8 Vic. c. 110.)

Established for the MANUFACTURE of every DESCRIPTION of NAILS necessary for house-building, shipbuilding, and coach-building, together with PINS, SPIKES, BOLTS, &c.—The object of this company is to carry out inventions in machinery, which has been fully tested, and found capable of producing NAILS of a quality equal to the best hammered nails, which can be sold by the company at a less price than the common nail. Specimens of the nails, and an estimate upon the working of the company's machinery—showing a dividend of 40 per cent. to the shareholders—may be examined at the offices of the company.

The shares of the company are £5 each, subject to the Parliamentary deposit of 6d. per share.—The calls will not, at any time, exceed 10s., and no call, after the first, will be made without two months' previous notice.

Applications for shares will, for a limited time, be received by the secretary, until the DEED OF SETTLEMENT, which now LIES at the office FOR SIGNATURE, is filled up.

By order of the directors, T. PEPPER, Secretary. Offices, 28, Surrey-street, Strand, London.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT, now first offered to the public, is the PRODUCT of a PATENT PROCESS, and possesses VALUABLE and PECULIAR QUALITIES, not otherwise attainable. Its colour is a purple-brown—it is perfectly innocuous—is far more durable than lead paint, and two coats are fully equal to three of any other paint. A single coat will be sufficient to demonstrate this. It dries rapidly, and its durability is a very great.

From its chemical composition, it is especially, and above all other paints, adapted to covering iron; also wood, and stucco, or brick walls. The peculiar oxidation of the base of this paint makes it impossible that further change should take place in its composition. It is identical with iron, and secures it from galvanic action, so injurious to the durability of lead paints on iron work. It has been exposed on shipping to the action of sea water, and the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for three years, without change.

Its cheapness and strength render it admirably adapted for iron railings, farm buildings, and shipping. It will also cover crooked timber. Price, by the ton, £20, delivered in London. All orders to be addressed to the offices of the company, 20, Fenchurch-street, London; where testimonials may be seen as to the value of the paint.

EVANS, BROTHERS, Agents.

IMPORTANT TO RAILWAY AND STEAM NAVIGATION COMPANIES, MANUFACTURERS, AND ENGINEERS. W. BROTHERTON AND CO'S

PATENT LUBRICATING FLUID (or Animal Oil) FOR ALL DESCRIPTIONS OF MACHINERY.

W. B. & CO. have the pleasure to state, that the above article is extensively used in her Majesty's Steam Navy, and by several of the principal Steam Navigation and Railway Companies, and is pronounced by them, and by the first practical engineers of the day, to be far better adapted for the purposes of lubrication than any other article hitherto used for such purposes. The Patent Lubricating Fluid is equally applicable for the most intricate and fine pieces of machinery, as for the heaviest bearings of the steam-engine.

It is cheaper, much more economical, and cleaner than oils at present in use; is free from smell, and calculated to effect a vast saving in the expenditure of working steam power. Further particulars can be had, and testimonials seen, by application to the manufacturers.

W. BROTHERTON & CO., Hungerford Wharf, Strand, London. N.B.—The above article will burn in lamps, and give a light equal to the best sperm oil.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS.

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—viz.:

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.

2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.

3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BURSLEM, in the STAFFORDSHIRE COALFIELD.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 68, Arlington-street, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANISED INDIA-RUBBER ROSE-PIPES are made to stand hot liquor and acids, without injury—do not become hard or stiff in any temperature (but are always perfectly flexible); and as they require no APPLICATION of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer-Bottling, Gardens, and all purposes where a perfectly flexible Pipe is required.

Made all sizes, from 4-inch bore upwards, and of any length to order.

Vulcanised India Rubber Garden Hose, fitted with brass-taps, Copper branch and Rose's complete, ready to be attached to pumps, water-butts, or cist-rns.

Sole manufacturer, JAMES LYNE HANCOCK, Goswell Mews, Goswell-road, London.

N.B.—Vulcanised India-Rubber Washers, of all sizes, for joints of hot-water and steam-pipes, and Vulcanised Sheet Rubber, any thickness, for all kinds of joints, and other purposes.

TO ENGINEERS AND BOILER-MAKERS. LAP-WELDED IRON TUBES, FOR MARINE AND LOCOMOTIVE STEAM-BOILERS. TUBES FOR STEAM, GAS, AND OTHER PURPOSES, ALL SORTS OF GAS FITTINGS.

THE BIRMINGHAM PATENT IRON TUBE COMPANY, 42, CAMBRIDGE-STREET, BIRMINGHAM, & SMETHWICK, STAFFORDSHIRE.

MANUFACTURE BOILER and GAS TUBES, under an exclusive License from Mr. E. Prosser, the patentee. These tubes are very extensively used in the boilers of marine and locomotive steam-engines in England and on the Continent—are stronger, lighter, cheaper, and more durable than brass or copper tubes, and are warranted not to open in the weld.

42, CAMBRIDGE-STREET, CRESCENT, BIRMINGHAM. WORKS—SMETHWICK, STAFFORDSHIRE. LONDON WAREHOUSE—No. 68, UPPER THAMES-STREET.

LAP-WELDED IRON TUBES. W. H. RICHARDSON, Jun., and CO., MANUFACTURE every description of WROUGHT-IRON TUBES, for Locomotive and Marine Boilers, Gas, Steam, and other purposes.

PATENT TUBE WORKS, DARLSTON, STAFFORDSHIRE.

IMPROVED LIFTING JACKS, IMPROVED BATCHET JACK, HALEY'S PATENT LIFTING JACK.

MANUFACTURED BY W. AND J. GALLOWAY, PATENT RIVET WORKS, MANCHESTER.

* The attention of parties who employ Lifting Jacks, is respectfully requested to the superiority of those annexed, over those hitherto in use.

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* It will at all times save much delay and inconvenience, if communications are directed simply TO THE EDITOR, Mining Journal Office, 26, FLEET-STREET, LONDON.

And Post-Office Orders, &c., must be made payable to WILLIAM SALMON MANSFIELD, as acting for the proprietors.